

ANALYSIS
PREPARED BY
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REVISED BY

C O N V A I R
A DIVISION OF GENERAL DYNAMICS CORPORATION
SAN DIEGO

PAGE 1
REPORT NO. ZD-30-008
MODEL 30
DATE

1.

SCOPE:

1.1

BASIC TYPE: The Convair "600" (Model 30) is a swept wing, four-engine, aft fan turbojet engine powered commercial transport. It is a pressurized land plane of medium range, high speed, high altitude capabilities. The body of this specification shall describe the Standard Mixed Arrangement of this airplane which provides for the accommodation of 32 first class day passengers and 71 coach passengers. Provisions shall be incorporated into the design of the airplane to permit conversion to alternate arrangements of various combined first class and coach versions and an all coach version with five-across seating.

1.2

GENERAL DESCRIPTION: The "600" is designed for use in overland transportation of passengers, mail and cargo. The external configuration is characterized by an all metal, swept back low wing of full cantilever construction, a single vertical tail, and a tricycle landing gear. A pressurized all metal fuselage of semimonocoque construction provides air conditioned accommodations for passengers and crew.

1.3

CHANGE AND SUBSTITUTION PROCEDURES:

1.3.1

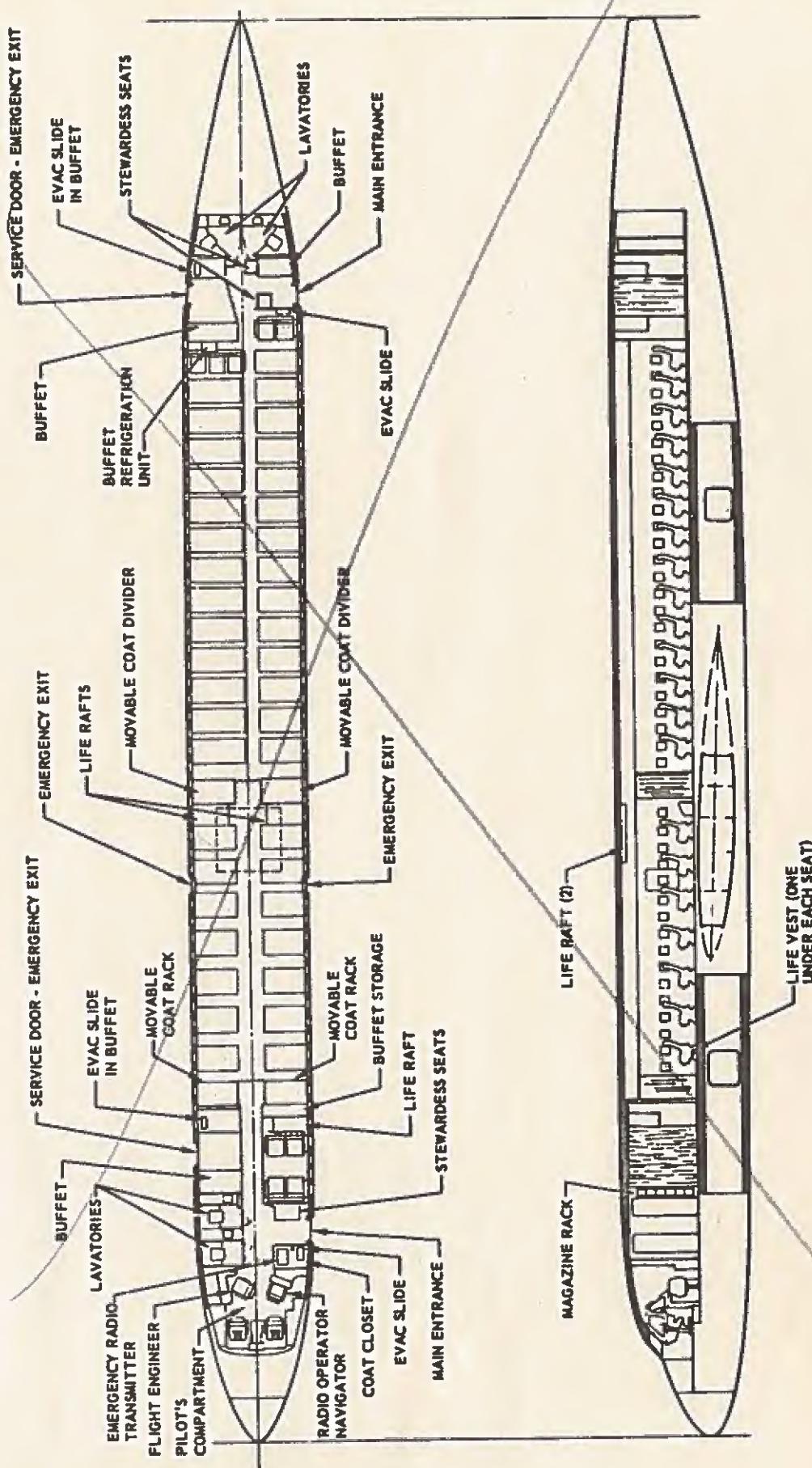
MAJOR CHANGES: See Purchase Agreement.

1.3.2

MINOR CHANGES: Convair may, without Change Order procedure or Buyer's consent, make corrections and minor changes in the Detail Specification requirements in order to correct defects, prevent delays, or improve the aircraft; provided that such corrections and changes shall not adversely affect price, time or delivery, functional character or performance of any aircraft to be purchased under the Purchase Agreement or the interchangeability or replaceability of parts therefor, nor appreciably affect the design, maintenance and servicing characteristics, weight or balance.

1.3.3

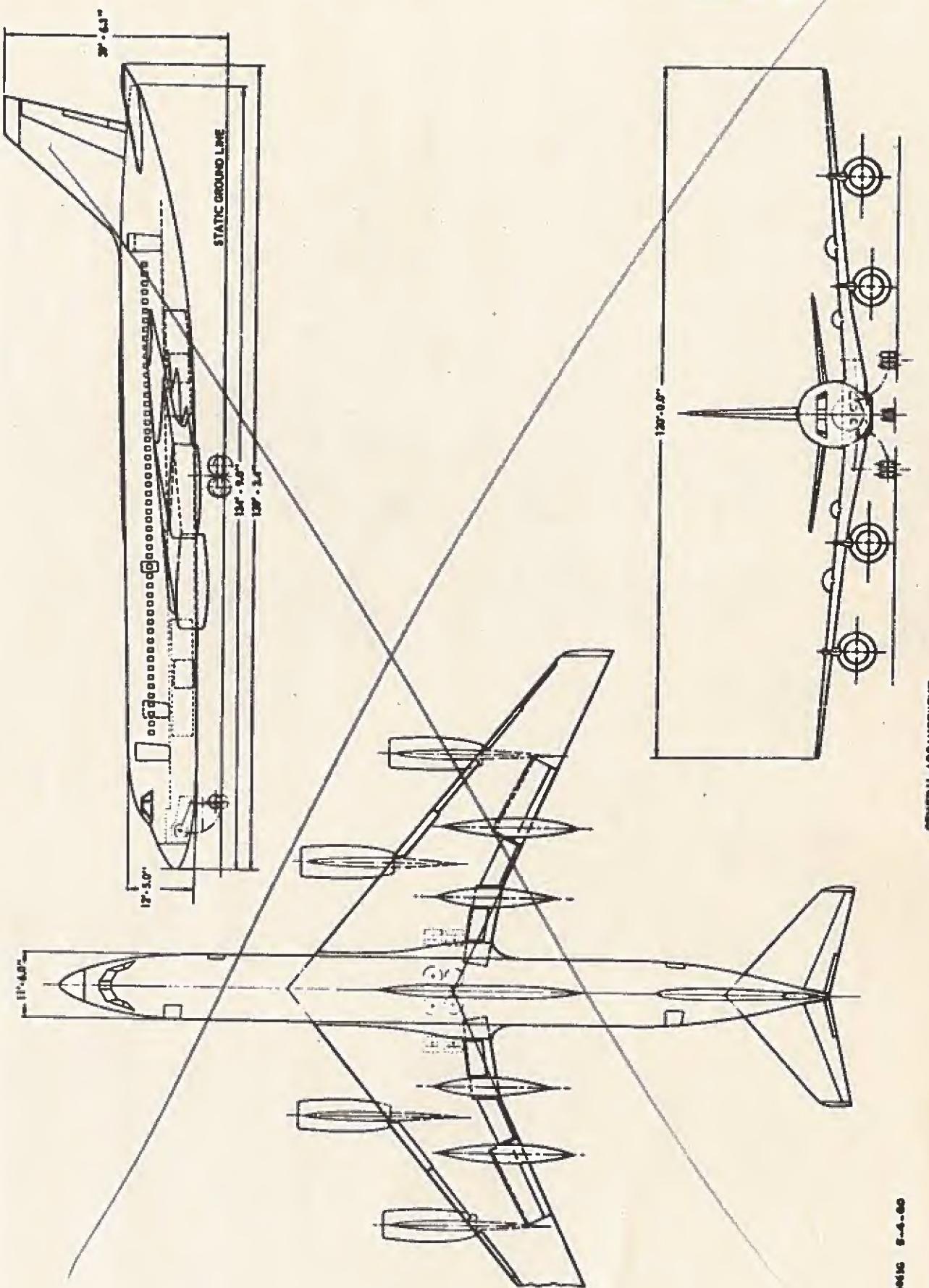
SAFETY CHANGES: See Purchase Agreement.



INTERIOR ARRANGEMENT - STANDARD AND MIXED SEATING
 32 FIRST CLASS SEATS, 72 COACH SEATS
 - REAL -

CONVAIR: SD

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MODEL 30

CONVAIR-SAN DIEGO CONVAIR DIVISION
GENERAL DYNAMICS CORPORATION
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3.1

CHARACTERISTICS (Cont)

3.1.2.2

TYPICAL LOADING SUMMARY:

Manufacturer's Weight Empty (dry)
 per specification and for standard-
 mixed configuration (104-passenger)

Fixed Useful Load

Flight Crew (4)	680	lb
Cabin Attendants - Female (5)	650	lb
Crew Baggage (9)	185	lb
Flight Equipment	50	lb
Oxygen Cylinders (4)	132	lb
Passenger Service	2,156	lb
Life Vests @ 1.0 lb each (8)	8	lb
Life Vests @ 2.2 lb each (120)	264	lb
Life Rafts - 26 Man (5)	755	lb
Emergency Transmitter	40	lb
Emergency Equipment	165	lb
Water	637	lb
Unusable Fuel and Oil	680	lb
Engine Oil	100	lb

Operating Weight Empty

120,787 lb

Payload (Space limit - Mixed configuration)

29,290 lb

Fuel

89,923 lb

Gross Weight

240,000 lb

Space Limit Payloads

Mixed

Passengers @ 165 lb (104)	17,160	lb
*First Class Baggage @ 66 lb/passenger (32)	2,112	lb
*Coach Baggage @ 44 lb/passenger (72)	3,168	lb
Cargo @ 11.85 lb/cu ft	6,850	lb

Total

29,290 lb

*Eleven pounds per passenger is assumed to be at the passenger seat. The remaining weight per passenger is in the cargo compartment. Passenger baggage is assumed to weight 11.85 lb/cu ft.

MODEL 30

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3.1 CHARACTERISTICS (Cont)

3.1.2.2 TYPICAL LOADING SUMMARY:

Manufacturer's Weight Empty (dry) per specification and for standard-mixed configuration (104-passenger)	114,391 lb
Fixed Useful Load	6,460 lb
Flight Crew (4)	680 lb
Cabin Attendants - Female (5)	650 lb
Crew Baggage (9)	135 lb
Flight Equipment	50 lb
Oxygen Bottles (4)	140 lb
Passenger Service	2,156 lb
Life Vests @ 1.0 lb each (8)	8 lb
Life Vests @ 2.2 lb each (120)	264 lb
Life Rafts - 26 Man (5)	755 lb
Emergency Transmitter	40 lb
Emergency Equipment	165 lb
Water	637 lb
Unusable Fuel and Oil	680 lb
Engine Oil	100 lb
Operating Weight Empty	120,851 lb
Payload (Space limit - Mixed Configuration)	29,290 lb
Fuel	89,859 lb
Gross Weight	240,000 lb
Space Limit Payloads	<u>Mixed</u>
Passengers @ 165-lb (104)	17,160 lb
*First Class Baggage @ 66 lb/passenger (32)	2,112 lb
*Coach Baggage @ 44 lb/passenger (72)	3,168 lb
Cargo @ 11.85 lb/cu ft	6,850 lb
Total	29,290 lb

*Eleven pounds per passenger is assumed to be at the passenger seat. The remaining weight per passenger is in the cargo compartment. Passenger baggage is assumed to weigh 11.85 lb/cu ft.

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3.1 CHARACTERISTICS (Cont)

3.1.2.2 TYPICAL LOADING SUMMARY:

Manufacturer's Weight Empty (dry) per specification and for standard-mixed configuration (103-passenger)	114,297 lb
Fixed Useful Load	6,460 lb
Flight Crew (4)	680 lb
Cabin Attendants - Female (5)	650 lb
Crew Baggage (9)	135 lb
Flight Equipment	50 lb
Oxygen Bottles (4)	140 lb
Passenger Service	2,156 lb
Life Vests @ 1.0 lb each (8)	8 lb
Life Vests @ 2.2 lb each (120)	264 lb
Life Rafts - 26 Man (5)	755 lb
Emergency Transmitter	40 lb
Emergency Equipment	165 lb
Water	637 lb
Unusable Fuel and Oil	680 lb
Engine Oil	100 lb
Operating Weight Empty	120,757 lb
Payload (Space limit - Mixed Configuration)	29,125 lb
Fuel	90,118 lb
Gross Weight	240,000 lb
Space Limit Payloads	<u>Mixed</u>
*Passenger @ 165 lb (103)	16,995 lb
**First Class Baggage @ 66 lb/passenger (32)	2,112 lb
**Coach Baggage @ 44 lb/passenger (71)	3,124 lb
Cargo @ 11.85 lb/cu ft	6,894 lb
Total	29,125 lb

*One of five cabin attendants is assumed in a coach seat.

**Eleven pounds per passenger is assumed to be at the passenger seat. The remaining weight per passenger is in the cargo compartment. Passenger baggage is assumed to weight 11.85 lb/cu ft.

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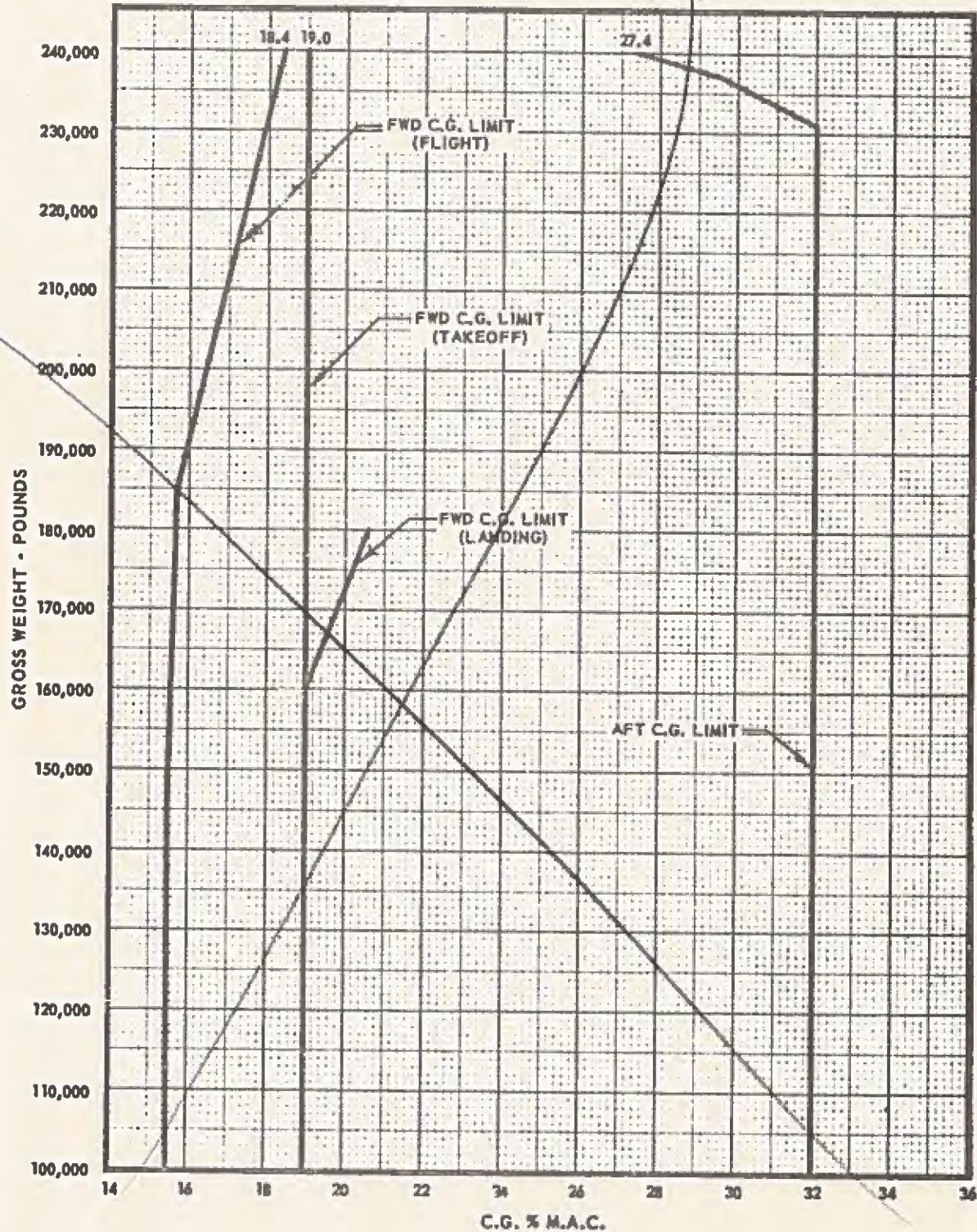
3.1 CHARACTERISTICS (Cont)

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Manufacturer's Weight Empty (dry) per specification and for standard-mixed configuration (103-passenger)	113,882 lb
Fixed Useful Load	6,460 lb
Flight Crew (4)	680 lb
Cabin Attendants - Female (5)	650 lb
Crew Baggage (9)	135 lb
Flight Equipment	50 lb
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Life Rafts - 26 Man (5)	755 lb
Emergency Transmitter	40 lb
Emergency Equipment	165 lb
Water	637 lb
Unusable Fuel and Oil	680 lb
Engine Oil	100 lb
Operating Weight Empty	120,342 lb
Payload (Space Limit - Mixed Configuration)	29,125 lb
Fuel	90,533 lb
Gross Weight	240,000 lb
Space Limit Payloads	<u>Mixed</u>
*Passenger @ 165 lb (103)	16,995 lb
**First Class Baggage @ 66 lb/passenger (32)	2,112 lb
**Coach Baggage @ 44 lb/passenger (71)	3,124 lb
Cargo @ 11.85 lb/cu ft	6,894 lb
Total	29,125 lb

*One of five cabin attendants is assumed in a coach seat.

**Eleven pounds per passenger is assumed to be at the passenger seat. The remaining weight per passenger is in the cargo compartment. Passenger baggage is assumed to weigh 11.85 lb/cu ft.



3.2 GENERAL:

- 3.2.1 GENERAL INTERIOR ARRANGEMENTS: The Standard Mixed Interior Arrangement of the 103-passenger airplane shall be as shown on Page 3b, INTERIOR ARRANGEMENT - STANDARD MIXED. It shall be possible to convert the interior to any of the various interior arrangements described in 1.1. For details see Section 3.19, FURNISHINGS AND EQUIPMENT.
- 3.2.2 MATERIALS: Materials acceptable to the FAA for airplanes of the transport category shall be used in the construction of this airplane. Aluminum alloy or other honeycomb construction may be used where advantageous for panel stiffness, weight or strength.
- 3.2.2.1 COLOR CODING: All sections of plumbing shall be color coded and banded in accordance with Military Standards and, in addition, marking shall indicate the direction of flow and the purpose of the line. The part number of each tubing assembly shall be identified. Color bands and part number identifications shall be plastic tape, or fluid resisting material, in accordance with Standard AND 10375.
- 3.2.2.2 PLUMBING INSTALLATION: All plumbing, both metal tubing and flexible hose, shall be protected by "U" bend expansion sections, where necessary. Rigid, or rigid and floating-type clamps alternated, shall be used and spaced to prevent fatigue and fretting failures due to normal production misalignment and length tolerances. Tubing and hose shall be installed in such manner as to provide protection against abrasion and wear.
- 3.2.3 WORKMANSHIP: Workmanship and methods of construction, acceptable to FAA for airplanes of the transport category, shall be used in the construction of this airplane.
- 3.2.4 FINISH: The general exterior of the airplane shall be unpainted except for special areas requiring corrosion protection and FAA identification markings. The exterior and interior finishes of the airplane, including colors and fabrics for the interior items, shall be in accordance with the finish specifications within the weight limits established in Furnishings, Appendix I-D.
- 3.2.5 SIGNS, PLACARDS, NAMEPLATES: All placards, nameplates, stencils and markings shall be in English with U. S. units unless otherwise indicated. All temperature instruments shall be marked in degrees centigrade, except when otherwise noted.



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3.4

STRUCTURAL DESIGN REQUIREMENTS:

3.4.1

STRENGTH: All airplane structure governed by this specification shall comply with the strength requirements of CAR 4b for the following design conditions:

Maximum taxi weight (lb)	240,000
Maximum takeoff weight (lb)	239,200
Maximum zero fuel weight (lb)	154,000
Maximum landing weight (lb)	180,000
Cabin pressure differential maximum relief valve setting (see 3.20.3.2)	8.6 psi

3.4.2

DESIGN SPEEDS: The airplane shall be designed to operate at the following equivalent airspeeds:

Design cruise speed:

Mach limit	M = .91
V_C (knots) - Sea level	375
At 21,500 ft altitude	395
Design speed (flaps full down)	195K or M = 0.40
Design speed (flaps 3/4 down)	220K or M = 0.50
Design speed (flaps 1/2 down)	245K or M = 0.60
Design speed (landing gear extension)	320K or M = 0.83
Design speed (landing gear retraction)	270K or M = 0.70
Design speed (leading edge device extension)	245K or M = 0.60
Design speed (rudder, with one hydraulic system out)	369K or M = 0.85

The airplane shall be placarded to be operated at the following indicated airspeeds:

Operating speed (flaps full down)	195K or M = 0.40
Operating speed (flaps 3/4 down)	220K or M = 0.50
Operating speed (flaps 1/2 down)	245K or M = 0.60
Operating speed (landing gear extension)	320K or M = 0.82
Operating speed (landing gear retraction)	270K or M = 0.70
Operating speed (leading edge device extension)	245K or M = 0.60
Operating speed (rudder, with one hydraulic system out)	369K or M = 0.85

3.4.2.1

DEMONSTRATION SPEEDS: The design speeds given above in 3.4.2, and the Design Dive Speed as specified by the FAA, shall be demonstrated to the FAA. Operation at $V_{NO} = V_C$ shall be certified.

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3.4

STRUCTURAL DESIGN REQUIREMENTS (Cont)

3.4.3

FATIGUE: Special care shall be exercised in establishing allowable stress intensities to minimize the possibility of fatigue failures. The fuselage structural arrangement and stress levels will be such that skin cracks or local ruptures will not result in explosive structure failure.

All cabin and pilot compartment windows will provide double safety in that a failure of any single element will not cause explosive depressurization.

3.4.4

LOADS: All pilot compartment and passenger compartment equipment (seats, buffet, radio and electronic racks, fire extinguishers, liquid containers, hat racks, etc.,) and their attaching parts and carry-through structure shall be stressed to withstand the following minimum loads:

Upward	3.0g
Downward	4.5g
Aft	1.5g
Forward	9.0g
Side	3.0g

(except buffet containers which shall be 9.0g)

These load values shall be multiplied by 1.33 for design of seat and safety belt attachments. The rear buffet support structure shall withstand 12g forward ultimate loads.

Basic support structure installations shall be designed to support the following loads:

Buffet No. 1	860.0 lb
Buffet No. 2	900.0 lb
Buffet No. 3	1,600.0 lb
Buffet No. 4	550.0 lb
Buffet No. 5	660.0 lb (includes 125 lb cabin attendant)
Buffet Stowage Cabinet	400.0 lb

3.4.5

MATERIAL: The airplane structure shall in general be fabricated of high strength aluminum alloy, including 2024, 7075, 7079 and 7178. Unclad aluminum (with protection against corrosion) may be used for internal structure. The external surfaces of external skins shall be alclad. All airplane structure shall be finished in accordance with Convair Structural Finish Specification 22-00004.

3.6

TAIL GROUP:

3.6.1

DESCRIPTION AND COMPONENTS: The tail group shall consist of a horizontal stabilizer, elevators, vertical stabilizer and rudder, constructed to restrict the entry of water, and with drainage openings which shall be effective both on the ground and in flight with the surfaces in neutral position.

3.6.2

STABILIZER: The horizontal stabilizer shall be adjustable to provide longitudinal trim. The horizontal surface shall be of full cantilever aluminum alloy construction, except the leading edges which shall be constructed for electrical de-icing. The left and right stabilizers shall be removable from the stabilizer center sections. The tips shall be removable. The stabilizer actuating structure, stabilizer attachment and carry through structure shall be fail safe.

3.6.3

ELEVATORS: The elevators shall consist of a left and a right hand panel hinged to brackets attached to the rear spar of the horizontal stabilizer. The elevators shall be of aluminum alloy construction. A flight tab on each elevator shall be provided to assist the pilots' control. The elevators shall be aerodynamically balanced and mass balanced. The flight tabs shall be mass balanced and so designed as to minimize the effect of snow and ice accumulation on tab effectivity and pilot control forces.

3.6.4

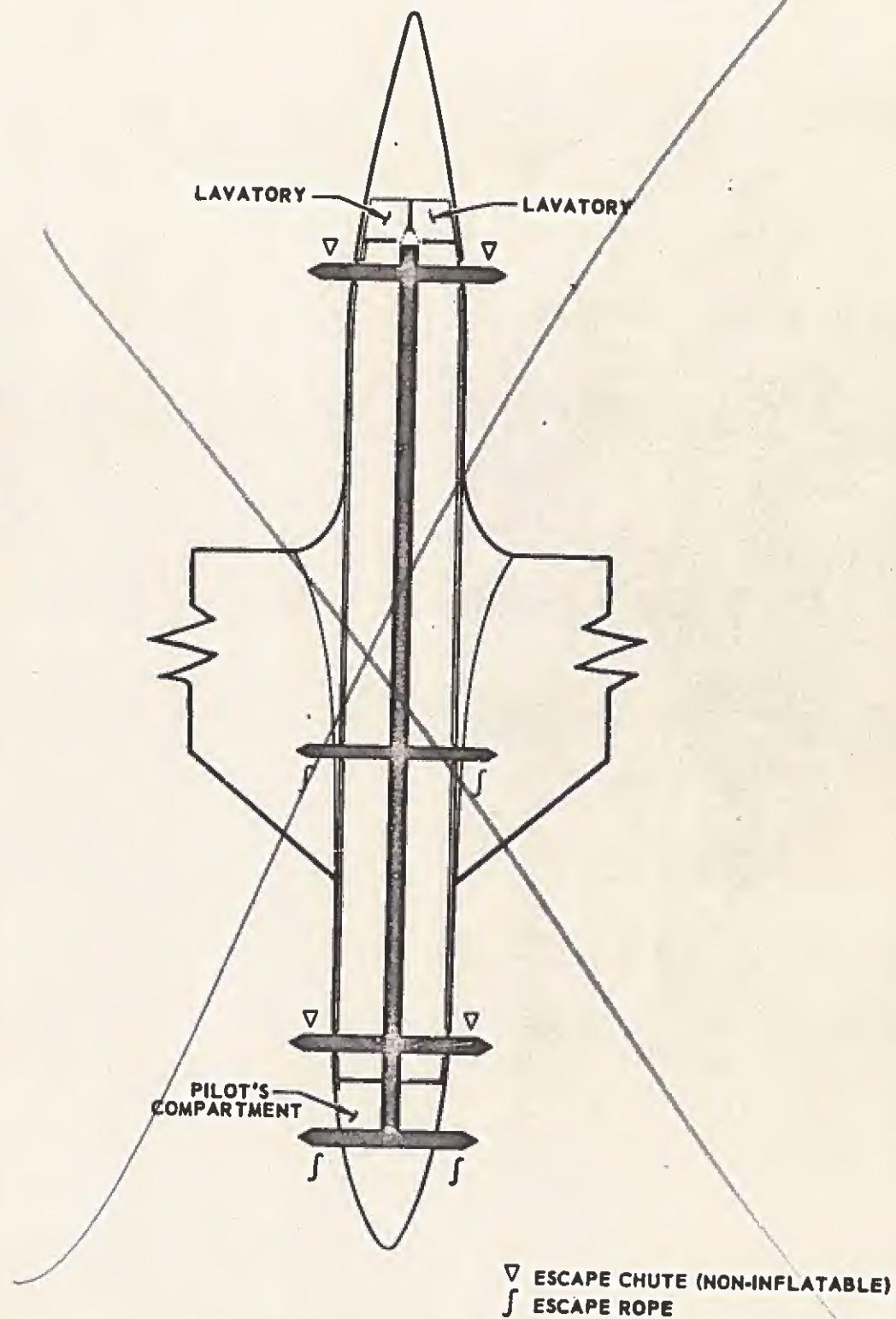
FIN: The vertical stabilizer shall be of full cantilever aluminum alloy construction, with leading edge removable and constructed for electrical de-icing below the HF antenna installation. The HF antenna installation shall consist of the tip of the fin, isolated from the fin by means of a plastic section.

3.6.4.1

MEANS OF ATTACHING VERTICAL STABILIZER: The vertical stabilizer shall be bolted to the fuselage structure with shear bolts located at the spars.

3.6.5

RUDDER: The rudder shall be of aluminum alloy and bonded honeycomb construction and hinged to brackets attached to the rear spar of the vertical stabilizer. A flight tab shall be installed to assist the pilots' control during rudder operation. A trim tab may be installed. The flight tabs shall be mass balanced and so designed as to minimize the effect of snow and ice accumulation on tab effectivity and pilot control forces.



5000E

EMERGENCY EXIT FLOW
AND ESCAPE FACILITIES

MODEL 30

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3.10 SURFACE CONTROL SYSTEM:

3.10.1 PRIMARY FLIGHT CONTROL SYSTEMS:

3.10.1.1 FLIGHT STATION CONTROLS; Dual-wheel and pedal-type flight control units shall be installed for the pilot and copilot. Controls shall operate in icing conditions. Consideration shall be given to arrangement of the pilot compartment controls to comply with the recommendations of the S-7 Committee of SAE.

3.10.1.1.1 CABLES, FITTINGS, AND CONNECTIONS: Preformed, tinned or corrosion resistant cable shall be used for all flexible cable controls. Pulleys or bellcranks shall be used at all points where control cables change direction more than three degrees. Cables and connections shall be accessible for inspection, maintenance and replacement.

3.10.1.1.2 CABLE PROTECTION: Protection against fouling, chafing and corrosion shall be provided on all cables. Cables shall not lock due to ice formation from internal or external sources.

3.10.1.1.3 BEARINGS: Roller bearings, anti-friction-type bearings and bushings shall be used throughout the main surface controls. The bearings shall be dust-sealed and grease-packed. Secondary flight and mechanical controls may use grease-packed bearings, plain bearings or bushings at all bearing points.

3.10.1.2 AILERON SYSTEM: Ailerons and spoilers shall be used for lateral control. In flight, the ailerons shall be aerodynamically actuated by the action of the aileron flight tabs. The spoilers and aileron flight tabs shall each be operated by a separate control system connected to the two control wheels. The control mechanism shall be so designed that, with the airplane on the ground the full throw of the control wheel will mechanically produce aileron movement. The ailerons shall be interconnected by a system of push-pull tubes. The spoilers shall be hydraulically operated and shall be used at all speeds for lateral control as well as for speed brakes, except when deactivated in accordance with 3.10.2.2. The spoiler system shall be powered by both hydraulic systems. Lateral trim shall be accomplished by an irreversible trim tab located on each aileron and operated by a control knob in the pilot compartment.

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3.10.1.3 **RUDDER SYSTEM:** The rudder shall be controlled by sets of rudder pedals provided for the pilot and copilot. Rudder



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3.10 SURFACE CONTROL SYSTEM (Cont)

3.10.1.3

RUDDER SYSTEM: The rudder shall be controlled by sets of rudder pedals provided for the pilot and copilot. The power for rudder actuation shall be supplied by both hydraulic systems. Emergency manual rudder actuation shall be provided by a cable operated flight tab. Each set of rudder pedals shall be adjustable fore and aft to accommodate pilots of different stature. A trim tab may be installed. Trim control may be accomplished by an irreversible trim tab operated by a control wheel on the pedestal.

3.10.1.4

ELEVATOR SYSTEM: The elevator shall be manually controlled by wheel-type control columns for the pilot and copilot. A cable and push-pull tube system shall interconnect the control columns and operate flight tabs on each elevator. The control mechanism shall be so designed that the full travel of the control column will produce both elevator and flight tab travel with the airplane on the ground.

3.10.1.5

STABILIZER SYSTEM: The stabilizer shall be controllable to provide longitudinal trim, supplemented by emergency trim augmentation as described in 3.10.2.2. Normal control of the stabilizer shall be accomplished by hydraulic power. Emergency control shall consist of an electrical drive and a hand crank for manual operation. The hand crank drive along with an interphone jack for pilot communication shall be installed in the left hand aft lavatory. The electrically-driven emergency system shall be operable from the pilot compartment. A warning horn indication of an incorrect stabilizer setting for takeoff shall be provided as described in 3.16.11.1. A switch shall be added to the outboard end of each pilot control wheel to permit pilot trimming of the horizontal stabilizer.

3.10.1.6

GUST PROTECTION: Hydraulic dampers shall be installed at each aileron and elevator to prevent structural damage due to gusts. The powered rudder actuating system shall include provisions for rudder gust protection.

3.10.2

SECONDARY FLIGHT CONTROL SYSTEMS:

3.10.2.1

LIFT AND DRAG INCREASING DEVICE SYSTEMS: The trailing edge flaps and leading edge devices shall be operated by hydraulic power controlled by a single lever on the pilot's

3.10

SURFACE CONTROL SYSTEM (Cont)

actuation shall be provided by the cable operated flight tab plus a hydraulic boost system powered from a single hydraulic system. The power boost system shall be active only when approximately 50 percent or more of maximum rudder deflection is required. Each set of rudder pedals shall be adjustable fore and aft to accommodate pilots of different stature. Trim control shall be accomplished by an irreversible trim tab operated by a control wheel on the pedestal. The rudder shall incorporate full aerodynamic balance.

3.10.1.4

ELEVATOR SYSTEM: The elevator shall be manually controlled by wheel-type control columns for the pilot and copilot. A cable and push-pull tube system shall interconnect the control columns and operate flight tabs on each elevator. The control mechanism shall be so designed that the full travel of the control column will produce both elevator and flight tab travel with the airplane on the ground.

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3.10.1.6

GUST PROTECTION: Hydraulic dampers shall be installed at each aileron, elevator and the rudder surfaces to prevent structural damage due to gusts. The dampers shall not adversely affect normal control forces in flight.

3.10.2

SECONDARY FLIGHT CONTROL SYSTEMS:

3.10.2.1

LIFT AND DRAG INCREASING DEVICE SYSTEMS: The trailing edge flaps and leading edge devices shall be operated by hydraulic power controlled by a single lever on the pilot's

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2 3.10 SURFACE CONTROL SYSTEM (Cont)

pedestal. Each control system shall be operated by a hydraulic motor driven gear box located in the fuselage and powered by both hydraulic systems. In each control system, torque tubes shall connect the gear box to mechanical actuators located adjacent to each flap section. Each control system shall be irreversible to prevent flap motion from airload. Full extension and retraction of flaps and leading edge devices shall be obtainable at structural design speeds with both hydraulic systems operating. With either hydraulic system operating singly, flap extension and retraction shall be possible at the following IAS, including leading edge device operation:

20°	at 230 knots
30°	at 210 knots
40°	at 190 knots
50° +0° -3°	at 170 knots

A monitoring system shall be provided to prevent asymmetrical positioning of the trailing edge flap in the event of mechanical failure. A pair of lights, one amber and one green, shall be installed on the center instrument panel for each right and left-hand set of leading edge devices. Lights shall illuminate "green" when the devices have fully extended and shall illuminate "amber" while the devices are in transit.

- 3.10.2.2 SPEED BRAKES: (See 3.5.4.4) A separate speed brake control shall be provided in the pilot compartment to extend the spoilers for use as speed brakes. Extension of the spoilers shall be permissible up to VD speeds at all altitudes. The spoilers shall be capable of selective deactivation of either outboard or inboard pairs for the purpose of augmenting longitudinal trim by extending the active pair.
- 3.10.3 TRIM CONTROL SYSTEMS: Provision shall be made to trim the airplane about the major axes. (See 3.10.1.2, 3.10.1.3 and 3.10.1.5.)
- 3.10.4 AUTOMATIC FLIGHT CONTROL: A Sperry SP-30 autopilot system shall be installed. The autopilot shall provide stable and fully damped airplane operation in all autopilot operating configurations, including the use of approach coupling devices and altitude controls. These provisions shall be applicable through the minimum to maximum operating speed ranges of the aircraft.
- 3.10.5 YAW DAMPER: A yaw damper shall be provided. The yaw damper shall be designed so that it will fail safe and shall not induce unsafe loads in the event of malfunctioning.

3.10

SURFACE CONTROL SYSTEM (Cont)

pedestal. Each control system shall be operated by a hydraulic motor driven gear box located in the fuselage and powered by both hydraulic systems. In each control system, torque tubes shall connect the gear box to mechanical actuators located adjacent to each flap section. Each control system shall be irreversible to prevent flap motion from airload. Full trailing edge flap deflection and leading edge device extension shall be obtainable from either hydraulic system. A monitoring system shall be provided to prevent asymmetrical positioning of the trailing edge flap in the event of mechanical failure. A pair of lights, one amber and one green, shall be installed on the center instrument panel for each right and left-hand set of leading edge devices. Lights shall illuminate "green" when the devices have fully extended and shall illuminate "amber" while the devices are in transit.

3.10.2.2

SPEED BRAKES: (See 3.5.4.4) A separate speed brake control shall be provided in the pilot compartment to extend the spoilers for use as speed brakes. Extension of the spoilers shall be permissible up to V_D speeds at all altitudes. The spoilers shall be capable of selective deactivation of either outboard or inboard pairs for the purpose of augmenting longitudinal trim by extending the active pair.

3.10.3

TRIM CONTROL SYSTEMS: Provision shall be made to trim the airplane about the major axes. (See 3.10.1.2, 3.10.1.3 and 3.10.1.5.)

3.10.4

AUTOMATIC FLIGHT CONTROL: A Sperry SP-30 autopilot system shall be installed. The autopilot shall provide stable and fully damped airplane operation in all autopilot operating configurations, including the use of approach coupling devices and altitude controls. These provisions shall be applicable through the minimum to maximum operating speed ranges of the aircraft.

3.10.5

YAW DAMPER: A yaw damper shall be provided. The yaw damper shall be designed so that it will fail safe and shall not induce unsafe loads in the event of malfunctioning.

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3.12 PROPULSION (Cont)

3.12.4

~~ENGINE DRIVEN ACCESSORIES:~~ All accessories shall be replaceable with the engine in place. Cooling and ventilation shall be provided in the accessory compartment in accordance with the engine and accessory manufacturers' requirements. All drain and vent lines shall be routed to avoid traps and shall, if routed overboard, discharge in such a manner that fluids will not be directed toward or re-enter any inlet. Accessibility shall be provided for normal inspection and line maintenance of accessories.

3.12.4.1

~~HYDRAULIC SYSTEM PUMPS:~~ Main airplane hydraulic pumps shall be installed on accessory drive pads on the engines. (Reference 3.15.1.9.)

3.12.4.2

~~GENERATORS:~~ A-C generators, as described in 3.16, shall be driven through constant speed drives from drive pads on the engines.

3.12.4.2.1

~~CONSTANT SPEED DRIVE OIL SYSTEM:~~ An oil system shall be installed on each engine to provide fluid for operation, lubrication and cooling of the constant speed drive. The oil temperature shall be automatically controlled. The constant speed drive oil system shall be independent of the engine oil system. The oil tank shall be stainless steel and all piping in the system, including the vent piping, shall be stainless steel or fireproof flexible hose. The constant speed drive oil system shall be designed for use with oil conforming to Specification MIL-L-7808.

3.12.4.2.2

~~CONSTANT SPEED DRIVE DISCONNECTS:~~ Each generator constant speed drive shall be equipped with a disconnect clutch to disconnect the drive from the engine. Disconnect shall be controlled by guarded switches in the pilot compartment. Re-engagement of a clutch shall be accomplished only by a manual operation at the clutch as a ground operation. Continued operation in the disconnected condition shall not affect engine operation. Disconnect shall be capable of being operated at any engine speed.

3.12.4.2.3

~~CONSTANT SPEED DRIVE MALFUNCTION CHECK:~~ Magnetic/electric plugs shall be installed in the sumps to permit a ground check for ferrous metal, using a test instrument.

3.12.4.3

~~TACHOMETER GENERATORS:~~ Each engine and each fan shall be supplied with a tachometer generator. A warning light shall be installed on the pilots' center instrument panel for each fan tachometer to indicate overspeeding.

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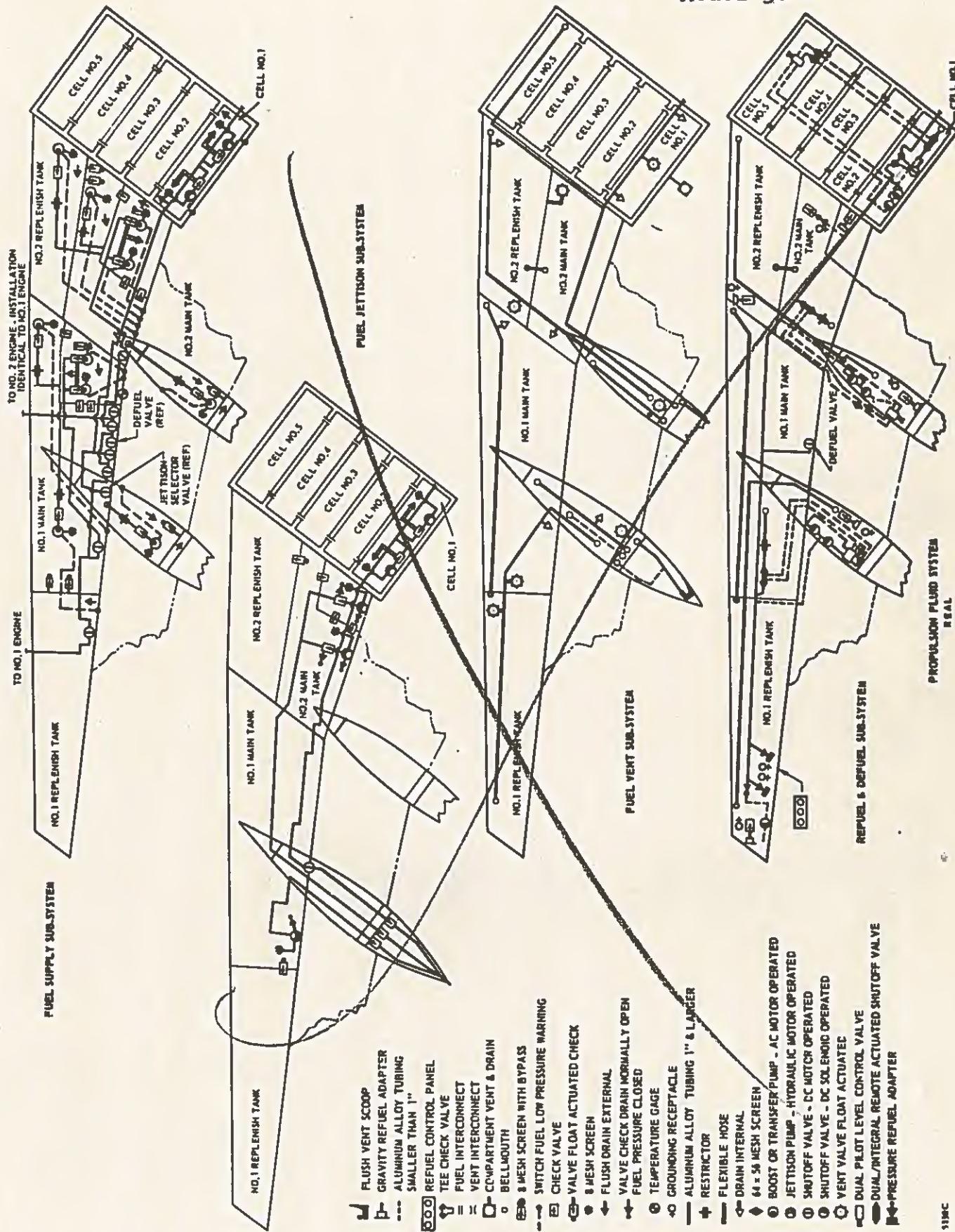
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3.12 PROPULSION (Cont)

- 3.12.4 ENGINE DRIVEN ACCESSORIES: All accessories shall be replaceable with the engine in place. Cooling and ventilation shall be provided in the accessory compartment in accordance with the engine and accessory manufacturers' requirements. All drain and vent lines shall be routed to avoid traps and shall, if routed overboard, discharge in such a manner that fluids will not be directed toward or re-enter any inlet. Accessibility shall be provided for normal inspection and line maintenance of accessories.
- 3.12.4.1 HYDRAULIC SYSTEM PUMPS: Main airplane hydraulic pumps shall be installed on accessory drive pads on the engines. (Reference 3.15.1.9.)
- 3.12.4.2 GENERATORS: A-C generators, as described in 3.16, shall be driven through constant speed drives from drive pads on the engines.
- 3.12.4.2.1 CONSTANT SPEED DRIVE OIL SYSTEM: An oil system shall be installed on each engine to provide fluid for operation, lubrication and cooling of the constant speed drive. The oil temperature shall be automatically controlled. The constant speed drive oil system shall be independent of the engine oil system. The oil tank shall be stainless steel and all piping in the system, including the vent piping, shall be stainless steel or fireproof flexible hose. The constant speed drive oil system shall be designed for use with oil conforming to Specification MIL-L-7808.
- 3.12.4.2.2 CONSTANT SPEED DRIVE DISCONNECTS: Each generator constant speed drive shall be equipped with a disconnect clutch to disconnect the drive from the engine. Disconnect shall be controlled by guarded switches in the pilot compartment. Re-engagement of a clutch shall be accomplished only by a manual operation at the clutch as a ground operation. Continued operation in the disconnected condition shall not affect engine operation. Disconnect shall be capable of being operated at any engine speed.
- 3.12.4.2.3 CONSTANT SPEED DRIVE MALFUNCTION CHECK: Magnetic/electric plugs shall be installed in the sumps to permit a ground check for ferrous metal, using a test instrument.
- 3.12.4.3 TACHOMETER GENERATORS: Each engine and each fan shall be supplied with a tachometer generator.

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3.12 PROPULSION (Cont)

strut or pod installation. The wing ventilating openings shall be designed and located so that it will be impossible for fuel inadvertently spilled at any time to enter the wing through these openings. Total integral main fuel capacity shall be approximately 11,960 gallons or approximately 80,132 pounds at 6.7 lb/gal and the minimum shall not be less than -1-1/2 percent of this value. Approximate tank capacities are as follows:

Inboard 6,680 gal (3,340 gal each)

Outboard 5,280 gal (2,640 gal each)

3.12.9.3.1 WING CENTER SECTION FUEL SYSTEM: A five-bay auxiliary fuel system, consisting of fuel-tight cells, shall be installed in the wing center section. The total capacity of this system shall be approximately 3,148 gallons, and the minimum shall not be less than -1-1/2 percent of this value.

3.12.9.3.2 CROSSFEED SYSTEM: A fuel crossfeed system shall be provided. The crossfeed system shall permit fuel to be delivered from any tank to any or all engines. An electrically-controlled "ON-OFF" valve shall be installed in the fuel crossfeed line for each engine. These valves shall incorporate provisions to electrically indicate "in transit" positions. The indicator lights shall be off when the valves are fully open or fully closed.

3.12.9.4 TANKS (DROPPABLE): Not required.

3.12.9.5 VENT SYSTEM: Vents shall be so arranged that they will not become plugged with ice. There shall be no undrained traps in the vent lines and the lines shall be located so as not to return any overflow into any part of the airplane. Drainage or siphoning fuel through tank vents shall not occur during any normal maneuvering of the airplane.

3.12.9.5.1 VENT SYSTEM OPERATING LIMITS: The vent systems shall be designed to:

- a. Maintain differential pressure of the integral tanks between the limits of +3.0 psi maximum and -2.0 psi minimum.
- b. Maintain internal differential pressure of the wing center section fuel cells between the limits of +3.5 psi maximum and -0.5 psi minimum.

These pressure limits shall not be exceeded during emergency descent from 41,000 feet to a safe pull-out altitude at the airplane maximum permissible rate of descent with tanks 20 percent full. These limits shall also not be exceeded during maximum rate of climb with +130°F initial fuel temperature.

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3.12.9.6 PIPING AND FITTINGS: Fuel lines external to the fuel tanks, wing center section fuel cell cavity and anti-shock bodies shall be stainless steel tubing; except that (1) Lines within the pod and pylon may be fireproof fatigue and abrasion resistant flexible hose at the pylon wing connection and where relative motion exists; (2) Lines between the integral wing tank and inboard anti-shock body tanks may be fatigue and abrasion resistant flexible hose; (3) The fuel tight juncture between the integral tank and outboard anti-shock body tanks may be a flexible connection of fatigue and abrasion resistant fuel cell material. Fuel lines within the fuel tanks, the sealed fuel cell cavity and the anti-shock body afterbodies shall be (1) 5052-0 aluminum alloy tubing when used with Wig-P-Flex type fittings; (2) 6061-T6 aluminum alloy tubing when used with Ermeto type fittings, except that pressurized drain lines in the fuel supply system shall be fatigue and abrasion resistant flexible hose. In all locations where fuel lines pass over or near any electrical wiring or conduit, drip pans, plastic shielding or equivalent shall be provided to prevent leakage from the lines contacting the wiring or conduit. Fittings shall be of the Ermeto-type, except for sizes one inch and larger located (1) Inside the fuel tanks; (2) In the sealed fuel cell cavity; (3) Aft of the fuel tight compartment in each anti-shock body; which may be of the Wig-O-Flex type or equivalent. Multiple bolt flange fittings may be used for line connection through structure or for adapting to flanged components in conjunction with Parker Gask-O-Seal type seals or equivalent in all areas. No hose clamps shall be used. Flexible fuel hoses shall be provided with detachable end fittings. No fuel lines, except vent and drain lines, shall be located in the main landing gear wheel wells.

3.12.9.7 VALVES:

3.12.9.7.1 GENERAL: All line shutoff, crossfeed and emergency valves shall be dc electrically operated. Each electric motor shall be replaceable without removing its respective valve from the line and without fuel leakage. It shall be possible to replace valve slide plate and seals without draining fuel from the tanks. A fuel valve shaft position indication system shall be provided for all electrically operated fuel system valves. It shall also be possible to manually operate the valves with the electrical motor section removed.

3.12

PROPELLION (Cont)

sible to replace valve slide plate and seals without draining fuel from the tanks. A fuel valve shaft position indication system shall be provided for all electrically operated fuel system valves. It shall also be possible to manually operate the valves with the electrical motor section removed.

- 3.12.9.7.2 LINE SHUTOFF VALVES: A shutoff valve shall be installed for each of the four integral tanks. These valves shall be electrically-operated by controls on a panel in the pilot's compartment. The valves shall incorporate provisions to electrically indicate "in transit" positions. The indicator lights shall be "OFF" when the valves are fully open or fully closed.
- 3.12.9.7.3 EMERGENCY SHUTOFF VALVES: An emergency fuel shutoff valve for each engine fuel supply system shall be located on the rear spar in an area protected from damage resulting from a wheels-up landing. The valves shall be controlled by the emergency fluid shutoff controls. Provisions for electrical indication of closing shall be incorporated in each valve by means of an indicator light which shall be "ON" when the valve is closed.
- 3.12.9.7.4 TANK SUMP DRAIN VALVES: The primary seal portion of tank sump drain valve assemblies shall be removable without requiring draining of fuel from tank, and located so as to assure draining of sump fluid in the lowest part of the tank with the aircraft in normal ground attitude.
- 3.12.9.7.5 FUEL CROSSFEED VALVES: Fuel crossfeed valves shall be controlled from the pilot compartment. The valves shall be electrically-actuated and located in the crossfeed manifold. The valves shall incorporate means to electrically indicate "in transit" positions. The indicator lights shall be "OFF" when the valves are fully closed.
- 3.12.9.7.6 THERMAL RELIEF VALVES: Thermal relief valves shall be incorporated where required for satisfactory operation of the fuel system.
- 3.12.9.7.7 LEVELING SHUTOFF VALVES: The leveling shutoff valves in the underwing fueling system shall be automatically operated by pressure signals from the fuel leveling pilot valves. It shall be possible to check these valves for satisfactory operation from the refueling panel. A primary and secondary pilot and shutoff valve system shall be provided for each tank system.

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- 3.12.9.7.8 DEFUEL VALVES: Two defuel valves shall be controlled from the pilot compartment. These valves shall be electrically actuated and be located between the engine crossfeed line and the refuel manifolds. Means for electrical indication of opening shall be incorporated in each valve by means of an indicator light which shall be "ON" when the valve is open.
- 3.12.9.7.9 REFUEL SELECTOR VALVE: A selector valve shall be installed in the refuel line to isolate the center section auxiliary tank. This valve shall be electrically actuated. Means for electrical indication of opening shall be incorporated in the valve by means of an indicator light which shall be "ON" when the valve is open.
- 3.12.9.8 STRAINERS: An 8-10 mesh screen shall be installed at each jettison, boost and transfer pump inlet.
- 3.12.9.9 QUANTITY GAGES AND FLOWMETERS:
- 3.12.9.9.1 QUANTITY GAGES: A null balancing, capacitance-characterized-type fuel quantity system shall be provided to gage all fuel tanks. The system shall contain fuel compensators to permit accommodating JP-4 or kerosene-type fuel of wide specific gravity range. The fuel gage units in the tanks shall be provided with terminal screws and shall be designed to permit installation or replacement without special tools. One measurement system shall be provided for each fuel tank system with provisions to gage total or main or replenish or anti-shock body quantities where applicable. Fuel measuring shall be on a weight basis rather than in gallons. A sufficient number of tank units shall be installed to provide that errors introduced on the ground or in the normal cruise attitude, shall not exceed ± 4 percent of indication in addition to ± 2 percent of "full" indication. The tank unit installation shall be so designed that the greatest degree of accuracy will be obtained in the normal flight attitude. A totalizing system shall be installed.
- 3.12.9.9.2 AUXILIARY FUEL GAGES: Repeater fuel indicators shall be installed near the underwing refueling points for ground reference. A center section fuel quantity indicator shall be included on the left hand refueling panel.
- 3.12.9.9.3 DRIP STICKS: Drip sticks or equivalent shall be installed and shall be calibrated in pounds of fuel. The markings

3.14

INSTRUMENTS AND NAVIGATIONAL EQUIPMENT:

3.14.1

INSTRUMENTS: The pilots' flight instruments shall be installed on a removable subpanel for the pilot and copilot with engine and miscellaneous instruments arranged on a panel between the flight panels so as to be visible to the pilot and copilot from a normal seated position without artificial light during daylight hours. The pilot's, co-pilot's and center instrument panels shall be removable without requiring access to the rear of the panels. Instruments, flush or face mounted, shall be capable of being replaced individually without disturbing or disconnecting adjacent units or connections.

3.14.1.1

PILOT'S INSTRUMENTS: The following instruments shall be installed at the pilot's position and shall be arranged as shown in illustration herewith:

- *One autopilot indicator
- *One machmeter
- *One altimeter
- *One airspeed/angle of attack indicator
- *One radio magnetic direction indicator
- *One rate-of-climb indicator
- *One turn-and-bank indicator
- *One horizon director indicator
- *One course deviation indicator
- *One clock
- One DMET indicator (Provisions)
- One doppler navigation indicator and computer indicator (Provisions)

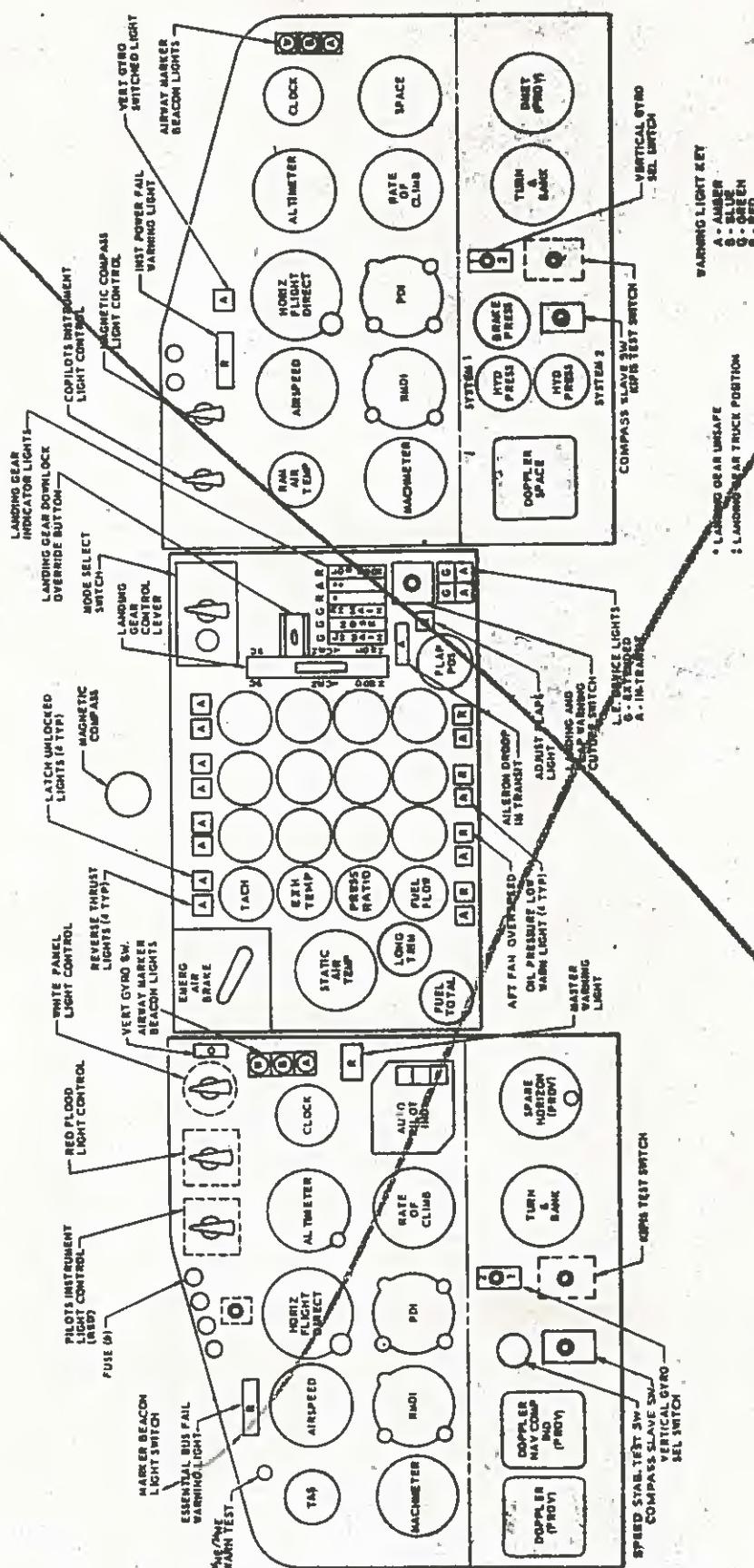
3.14.1.2

COPILOT'S INSTRUMENTS: The following instruments shall be installed at the copilot's position and shall be arranged as shown in illustration herewith:

- *One machmeter
- *One airspeed/angle of attack indicator
- *One altimeter
- *One rate-of-climb indicator
- *One turn-and-bank indicator
- *One horizon director indicator
- *One course deviation indicator
- *One clock
- *One true air speed indicator
- One DMET indicator (Provisions)
- *One radio magnetic direction indicator
- *Two hydraulic pressure indicators
- *One brake hydraulic pressure indicator
- *One static air temperature indicator
- *One ram air temperature indicator

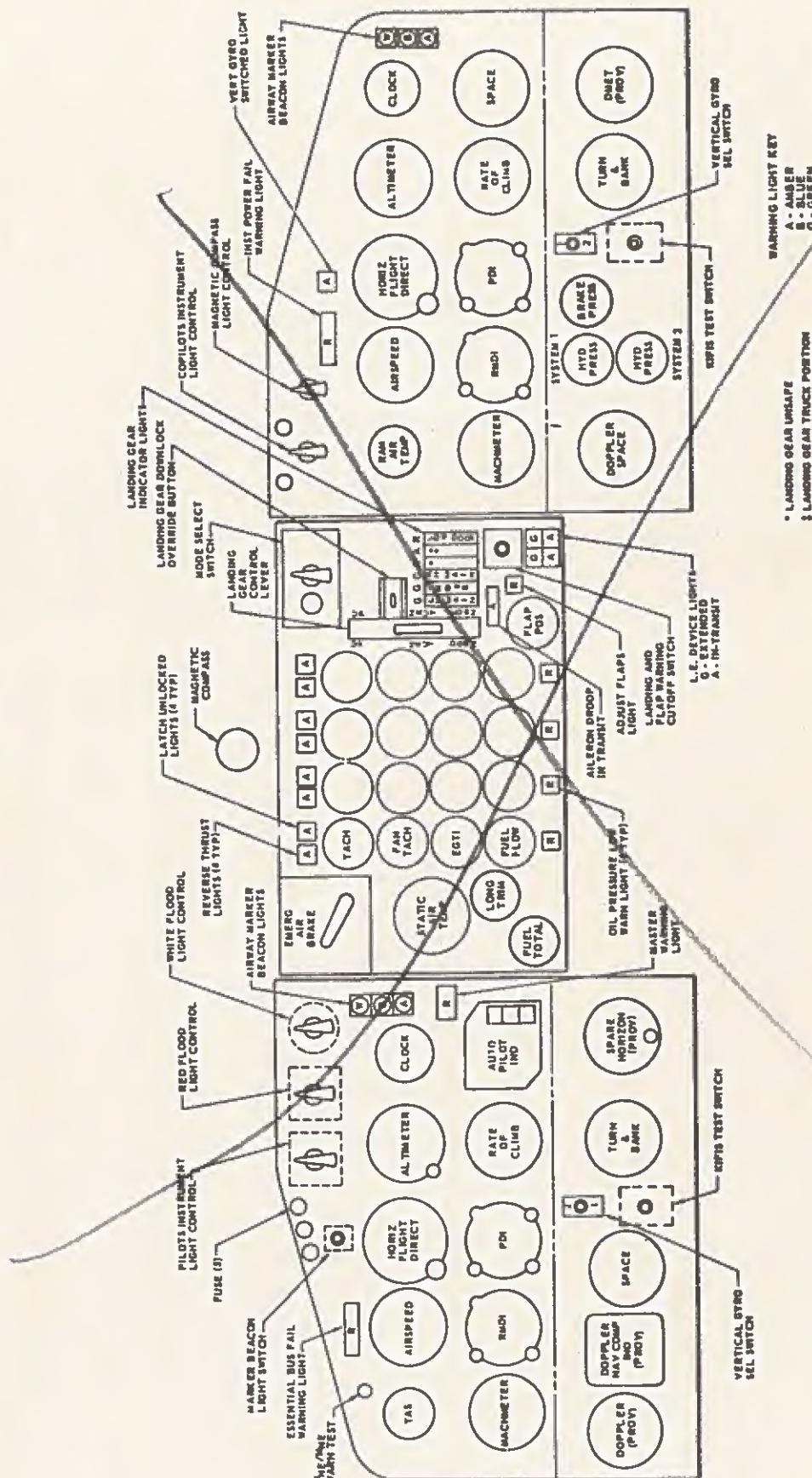
*Instrument integrally lighted and clamp-mounted

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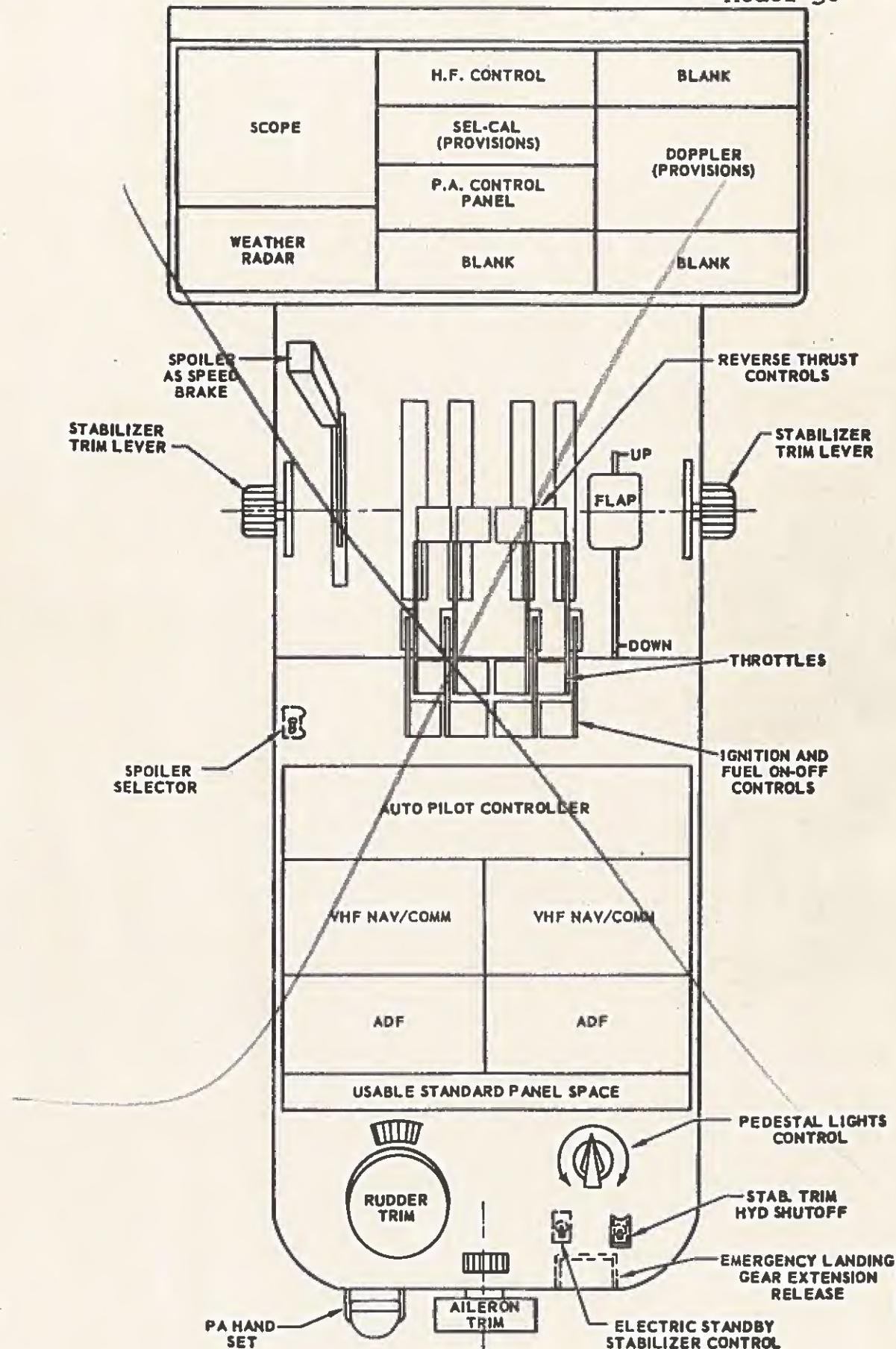


MLOPs AND COMPUTERS INSTRUMENT PAMELS

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PILOT'S AND COPILOT'S INSTRUMENT PANELS
REAL



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3.14 INSTRUMENTS AND NAVIGATIONAL EQUIPMENT (Cont)

3.14.1.3 CENTER PANEL INSTRUMENTS: The following instruments shall be installed on the center instrument panel and shall be arranged as shown in illustration herewith:

- *One fuel quantity totalizer indicator
- *Four fuel flow indicators
- *Four exhaust temperature indicators
- *Four engine tachometer indicators
- *One flap position indicator
- *One longitudinal trim indicator
- *Four pressure ratio indicators

3.14.1.4 FLIGHT ENGINEER'S INSTRUMENTS: The following instruments shall be installed for use by the flight engineer. The detailed arrangement of these instruments is shown in illustration herewith:

- Five fuel quantity indicators
- One fuel temperature indicator (with selector switch)
- One d-c voltmeter
- One a-c voltmeter
- Four d-c ammeters
- Four a-c ammeters
- One frequency meter
- Four engine oil pressure indicators
- Four engine oil temperature indicators
- Four engine oil quantity indicators
- One cabin differential pressure indicator
- One cabin rate of climb indicator
- Dual-hydraulic fluid quantity indicator
- Two hydraulic fluid temperature indicators
- Two cabin supercharger RPM indicators
- One dual-cabin supercharger air flow indicator
- One cabin temperature indicator
- Four KW-KVAR meters
- One cabin altimeter
- Two cabin supercharger bearing temperature indicators
- Four engine fan tachometer indicators

3.14.1.5 MISCELLANEOUS INSTRUMENTS: The following instruments shall be installed in the flight compartment for use by the flight crew:

*Instrument integrally lighted and clamp-mounted.

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3.14

INSTRUMENTS AND NAVIGATIONAL EQUIPMENT (Cont)

3.14.1.3

CENTER PANEL INSTRUMENTS: The following instruments shall be installed on the center instrument panel and shall be arranged as shown in illustration herewith:

- *One fuel quantity totalizer indicator
- *Four fuel flow indicators
- *Four exhaust temperature indicators
- *Four engine tachometer indicators
- *One flap position indicator
- *Four engine fan tachometer indicators
- *One longitudinal trim indicator

3.14.1.4

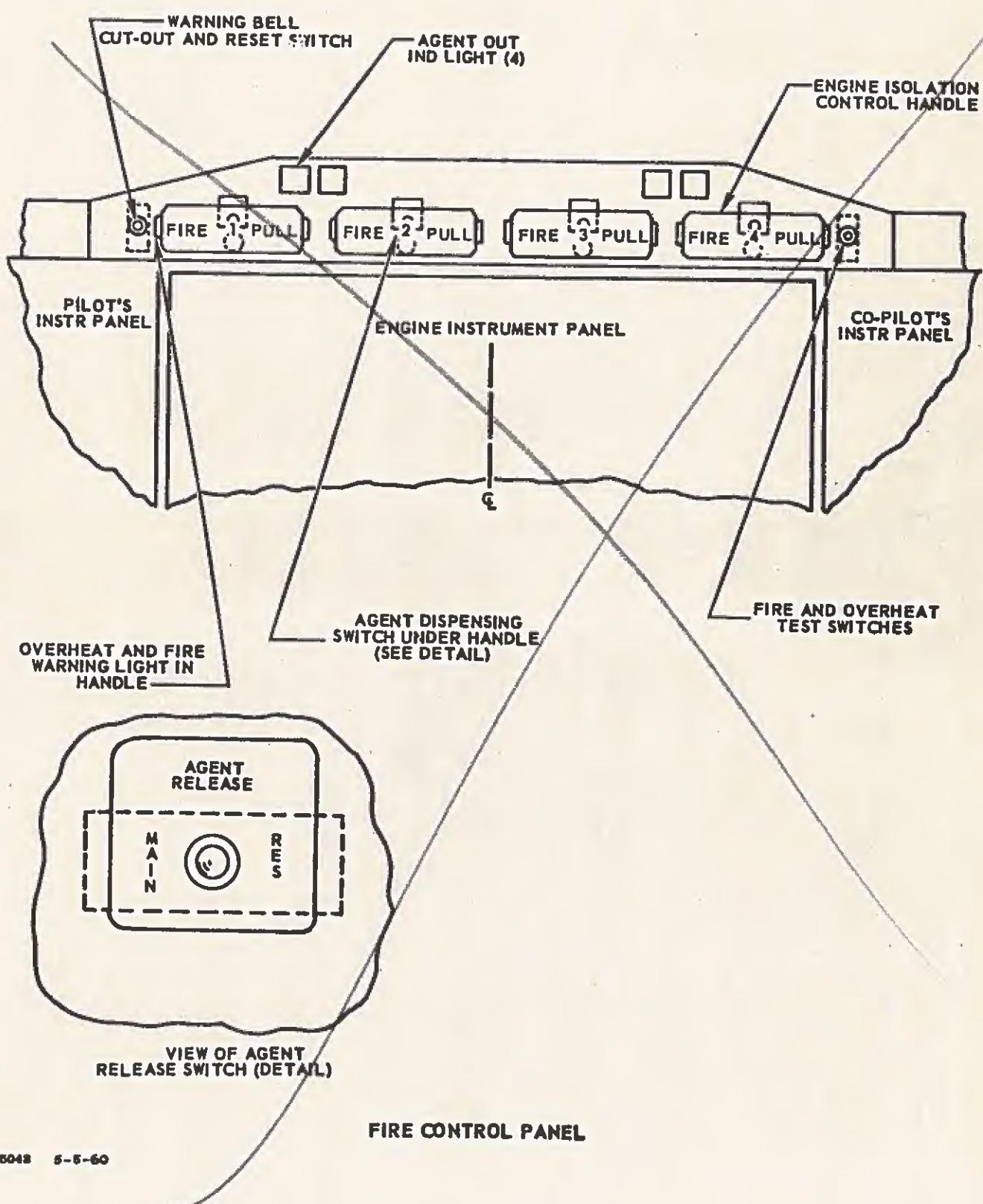
FLIGHT ENGINEER'S INSTRUMENTS: The following instruments shall be installed for use by the flight engineer. The detailed arrangement of these instruments is shown in illustration herewith:

- Five fuel quantity indicators
- One fuel temperature indicator (with selector switch)
- One d-c voltmeter
- One a-c voltmeter
- Four d-c ammeters
- Four a-c ammeters
- One frequency meter
- Four engine oil pressure indicators
- Four engine oil temperature indicators
- Four engine oil quantity indicators
- One cabin differential pressure indicator
- One cabin rate of climb indicator
- Dual-hydraulic fluid quantity indicator
- Two hydraulic fluid temperature indicators
- Two cabin supercharger RPM indicators
- One dual-cabin supercharger air flow indicator
- One cabin temperature indicator
- Four KW-KVAR meters
- Four thrust indicators
- One cabin altimeter
- Two cabin supercharger bearing temperature indicators

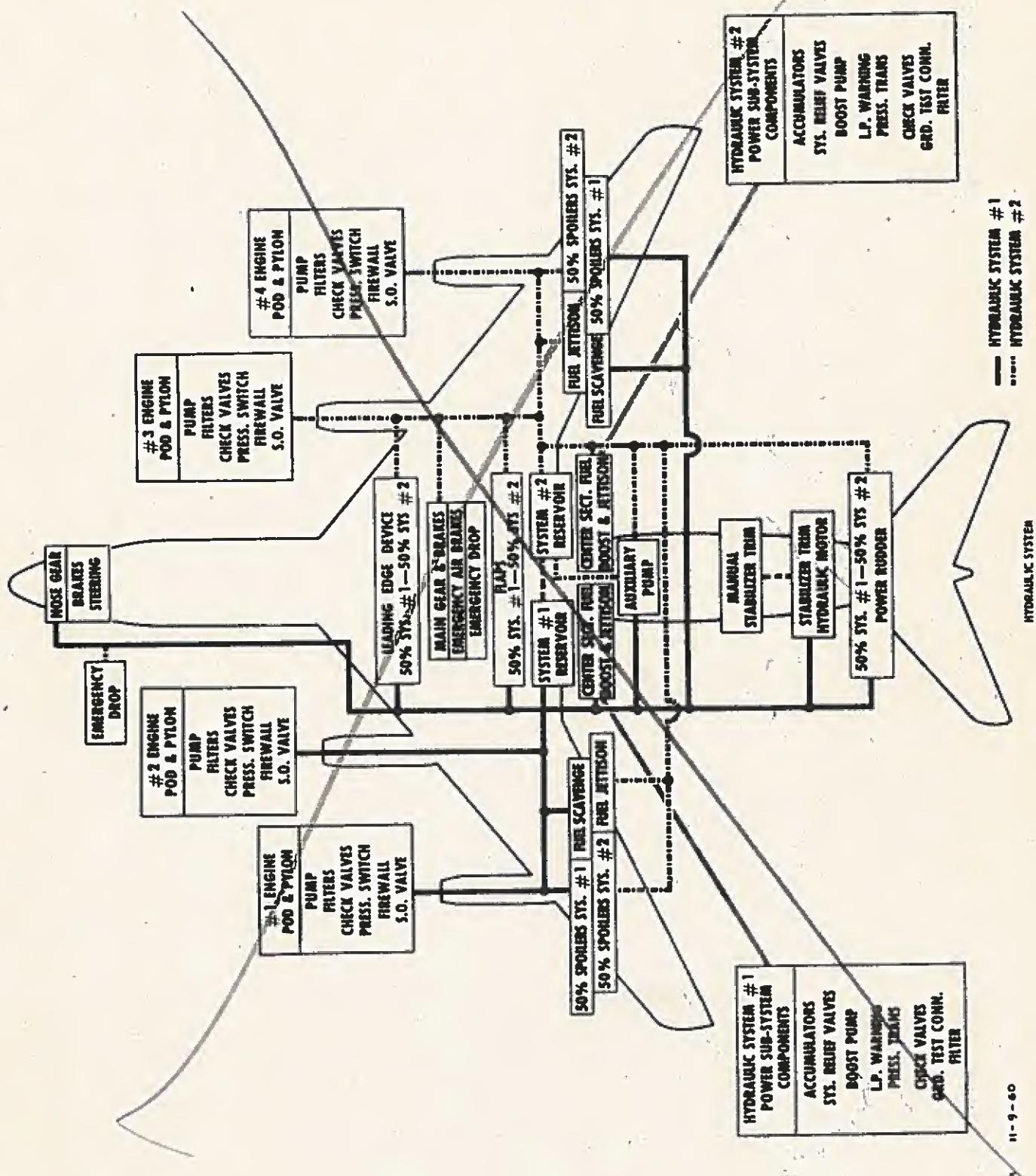
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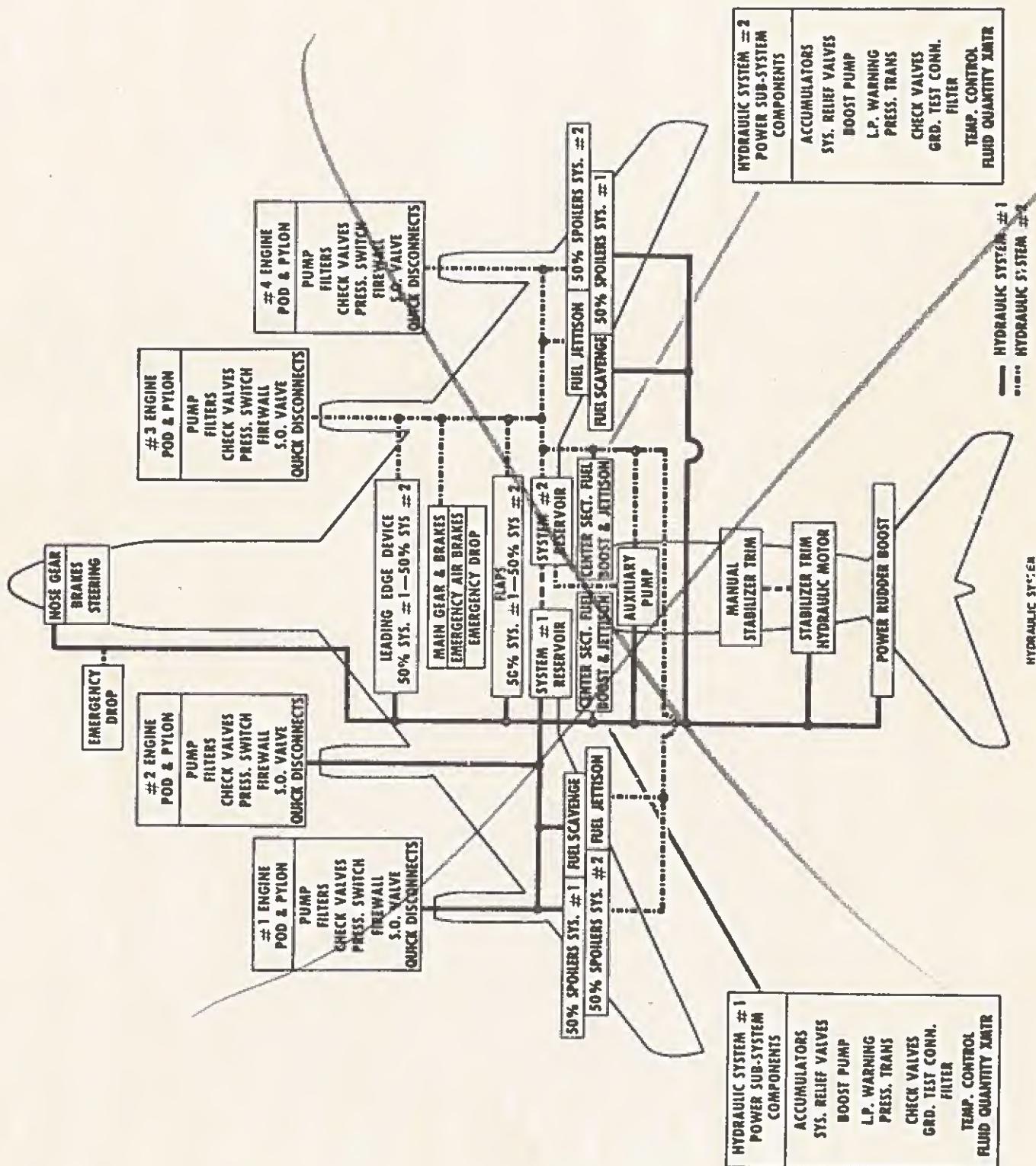
MISCELLANEOUS INSTRUMENTS: The following instruments shall be installed in the flight compartment for use by the flight crew:

*Instrument integrally lighted and clamp-mounted.



- 3.15 HYDRAULIC AND PNEUMATIC SYSTEMS:
- 3.15.1 HYDRAULIC SYSTEM:
- 3.15.1.1 DESCRIPTION AND COMPONENTS: Two separate hydraulic systems, powered by engine-driven pumps, shall be provided. One system shall actuate the spoilers, flaps, leading edge devices, rudder boost, fuel jettison-booster pumps, fuel scavenging pumps, horizontal stabilizer adjustments, nose landing gear, nose gear steering and nose wheel brakes. The other system shall actuate the spoilers, flaps, leading edge devices, fuel jettison-booster pumps, main landing gear, and main wheel brakes. An electrically driven a-c auxiliary pump shall be provided to supply both systems. The systems shall be of the 3,000 psi closed-center-type, continuously operating, powered by variable delivery pumps and shall operate throughout the operating temperature and altitude range of the airplane.
- 3.15.1.2 FLUID: The hydraulic systems shall be designed to function with fire resistant hydraulic fluid.
- 3.15.1.3 PACKING AND SEALS: All packing and seals, gaskets and cups shall be suitable for use with the specified hydraulic fluid and shall, in general, be Teflon, AN-types or equivalent.
- 3.15.1.4 LINES: Pressure lines shall be stainless steel conforming to Specification MIL-T-6845 or MIL-T-8504, or shall be flexible hose. Return lines shall be 5052-0 and/or 6061-T6 aluminum alloy except that stainless steel lines shall be used in the pod area and also in other areas where dictated by high return pressure. Fireproof flexible hose shall be used in the engine pods.
- 3.15.1.5 FITTINGS: All fittings used in the hydraulic systems shall be of the Ermeto-type.
- 3.15.1.6 EMERGENCY SHUTOFF VALVES: Hydraulic fluid emergency shutoff valves shall be provided. These valves shall be controlled from the fire control panel. These valves shall be d-c electrically-actuated.
- 3.15.1.7 RESERVOIRS: Two hydraulic reservoirs, interconnected at approximately the refill level, shall be installed aft of the main wheel well area to supply the systems. The interconnection of the reservoirs provides for common filling. The installation of the reservoirs shall be such that the





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3.16

ELECTRICAL SYSTEM (Cont)

defined in Specification 0-09001 or equivalent. The installation of electrical accessory equipment, junction boxes, switch and circuit breaker panels and terminal panels shall be designed to permit inspection and maintenance without removing brackets, tubing or structural parts. In all areas susceptible to the accumulation of explosive vapor, precaution shall be taken in the selection and insulation of electrical wiring and components to eliminate the possibility of explosion or fire.

3.16.5

WIRING:

3.16.5.1

GENERAL: All wiring in the electrical system shall be of copper, except for special applications, and shall be in accordance with Convair standard practices. All unshielded wire shall have primary high temperature vinyl insulation, glass braid and an outer covering of nylon extrusion or braid insulation, except in special cases, such as high temperature liquid immersion and where equipment is supplied with an approved type aircraft wire. Wire current ratings shall be guided by AIA document "Design Manual for Aircraft Electrical Installations" as revised May 1, 1952. Aluminum cable or bus bars shall not be used in the electrical systems.

3.16.5.2

WIRE SIZE: Wire sizes shall be determined from the maximum current carrying capacity of the wire, as determined by the equipment being powered, except where the voltage drop requires larger sizes for satisfactory operation.

3.16.5.3

WIRE SUPPORTS: All wire and cable runs through the structure shall be supported adjacent to the structure to prevent abrasion; rubber grommets shall not be used for this purpose. Where a single clamp is the sole means of maintaining separation between the wires and edges of metal, additional physical protection shall be provided to prevent chafing of wire insulation in case of clamp failure.

3.16.5.4

WIRE ROUTING: All resistance-type temperature bulb wiring or any other sensitive circuits which may be affected by extraneous currents shall be so arranged that the airplane structure is not a part of the "bridge" or other critical portion of the circuit. The dc electrical wiring in the vicinity of the magnetic compass shall be installed in such a manner as to minimize its effect on the compass. Wire

3.16

ELECTRICAL SYSTEM (Cont)

3.16.8.2.3

PEDESTAL AND OVERHEAD PANEL LIGHTING: Controlled red light sources shall be provided in the pilot compartment for the pedestal. Rheostat control shall be accessible to both pilot and copilot. Separate control shall be provided for the forward and aft pedestal panels. The forward panel light control shall be located on forward panel.

3.16.8.2.4

MAP READING LIGHTS: Individual map-reading red and white lights and their dimming control rheostats shall be provided, one for the pilot, one for the copilot and one for the radio operator/navigator. These lights shall have an adjustable beam for pilot compartment paperwork.

3.16.8.2.5

MAGNETIC COMPASS LIGHT: A rheostat control, with "OFF" position, shall be installed for the integral light in the magnetic compass and shall be connected to the emergency battery bus. This rheostat shall be accessible to the copilot.

3.16.8.2.6

CONSOLE LIGHTING: Red console panel illumination, controlled by separate "OFF" position rheostats, shall be provided for each side console. Red and white flood lighting controlled by a continuously dimmable control, shall be provided for each side console.

3.16.8.2.7

TABLE LIGHT: A red and white dimmable table light shall be installed along the forward edge of the flight engineer's table.

3.16.8.2.8

SPARE LAMPS: Two spare lamps of each type used for the pilot compartment lights shall be provided in a shock absorbing container in an accessible location within the pilot compartment. Two spare lamps of each incandescent-type used for the passenger compartment shall be similarly stowed in the passenger compartment.

3.16.8.3

COMPARTMENT LIGHTING:

3.16.8.3.1

CEILING LIGHTS: General illumination shall be provided in the passenger compartment. The lamps and fixtures shall not be visible to the passengers. The fixtures shall be designed to permit replacement of lamps without the use of special tools.

3.16.8.3.2

AISLE LIGHTING: Light sources shall be provided to illuminate aisle width only in the passenger compartment and

3.16 ELECTRICAL SYSTEM (Cont)

entrance compartment when the general lighting is "OFF". The light beams shall be directed to provide adequate aisle lighting without annoying the passengers.

3.16.8.3.3 LIGHTING CONTROLS: Controls shall be installed within the pilot compartment to permit master control of all general lighting and reading lights. This control shall allow monitoring of passenger compartment lighting. The general lighting throughout the passenger compartment shall be controlled from the cabin attendant panel and shall have "OFF-DIM-BRIGHT" control.

3.16.8.3.4 READING LIGHTS: A reading light, adjustable by hand, shall be provided for each passenger seat location. Of the five lights provided, at each passenger seat row, four shall be installed in optimum direction for the four-abreast standard seating arrangement. The fifth shall be directed toward the center coach seat location. Two lights shall be similarly installed at each of the three forward left hand double-seat rows. The "ON-OFF" switch for each light shall be located adjacent to the light. These switches shall be separated from the cabin attendants' call button with as great a distance as practicable between them.

3.16.8.3.4.1 HEAT RADIATION: The heat radiation from the reading lights shall be minimized. The installation shall be designed so that material in the hat rack shall not be damaged by heat from the lights and so that hand adjustment of the lights will not be impeded by excessive heat.

3.16.8.3.4.2 LAMP AND FIXTURE REPLACEMENT: All reading light fixtures shall be designed for replacement of lamps and sockets without removal of upholstery, trim or interior finish. Reading lamps shall be replaceable without the use of special tools. All interior fixtures shall be replaceable without cutting or soldering of wires.

3.16.8.3.5 LAVATORY LIGHTING: Each lavatory shall be provided with light fixtures to illuminate the lavatory and for use at the mirrors. All lavatory lights, including valance lights, shall be controlled by an "OFF-ON" switch at the cabin attendants' panels. Mirror lighting for each lavatory shall be controlled by an "OFF-ON" switch integral with the respective lavatory door jamb. The control switch for mirror lighting shall be provided with a sheet metal slide, on each upper door jamb extrusion, to hold this switch in the "ON" position when the door is open.

3.16.8.3.6 SIGNS: Illuminated and legible "NO SMOKING" and "FASTEN SEAT BELT" signs shall be provided in the passenger cabin

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entrance compartment when the general lighting is "OFF". The light beams shall be directed to provide adequate aisle lighting without annoying the passengers.

3.16.8.3.3

LIGHTING CONTROLS: Controls shall be installed within the pilot compartment to permit master control of all general lighting and reading lights. This control shall allow monitoring of passenger compartment lighting. The general lighting throughout the passenger compartment shall be controlled from the cabin attendant panel and shall have "OFF-DIM-BRIGHT" control.

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LAVATORY LIGHTING: Each lavatory shall be provided with light fixtures to illuminate the lavatory and for use at the mirrors. Valance lights shall be controlled by an "OFF-ON" switch at the cabin attendant's panels. Mirror lighting for each lavatory shall be controlled by an "OFF-ON" switch integral with the respective lavatory door jamb.

3.16.8.3.6

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and a "RETURN TO CABIN" sign shall be provided in each lavatory. One forward illuminated sign shall be installed on the aft surface of the first passenger compartment drop ceiling and shall read as follows: "NO SMOKING - FASTEN SEAT BELT - FORWARD LAVATORIES - VACANT-OCCUPIED". Another forward illuminated sign shall be installed on the aft face of the pilot's door drop ceiling in the passenger compartment entryway area and shall read as follows: "NO SMOKING - FASTEN SEAT BELT - LAVATORIES - VACANT-OCCUPIED". A switch for the "NO SMOKING" sign and a switch for the "FASTEN SEAT BELT" and "NO SMOKING" signs shall automatically be illuminated whenever oxygen masks are popped out.

Also, connection with aisle lighting, for automatic actuation when oxygen masks pop out, shall be provided. Electrically lighted signs shall be plainly legible to passengers under all conditions of ambient light encountered. The signs shall be energized when the lavatory door lock is actuated. The locked position shall indicate "OCCUPIED" and the unlocked position shall indicate "VACANT". An illuminated sign shall be installed over both aft lavatory doors, reading "LAVATORIES - VACANT-OCCUPIED". The sign shall be plainly visible to passengers in the aft end of the passenger compartment. The signs shall be energized when the lavatory door lock is actuated. The locked positions shall indicate "OCCUPIED" and the unlocked position shall indicate "VACANT".

3.16.8.3.7

ENTRANCE AREA LIGHTING: Both entrance areas shall be provided with lighting to give separately controlled illumination independent of the general cabin lighting. This lighting shall be concentrated on the doorsill area. The lighting shall be controlled by "OFF-ON" switches at the forward and aft stewardess' panels.

3.16.8.3.8

BUFFET AND COAT COMPARTMENT LIGHTING: General illumination shall be provided for the buffet area including the buffet work surface with a control switch in the buffet area. This lighting shall also illuminate the service entrance area adequately for night servicing. Lighting shall also be provided in the coat stowage areas, installed so that coats cannot come in contact with the fixtures. Control switches shall be located conveniently in the coat rack area. Lights shall be positioned so as to eliminate adverse shadow effects while attendants are in buffet areas.

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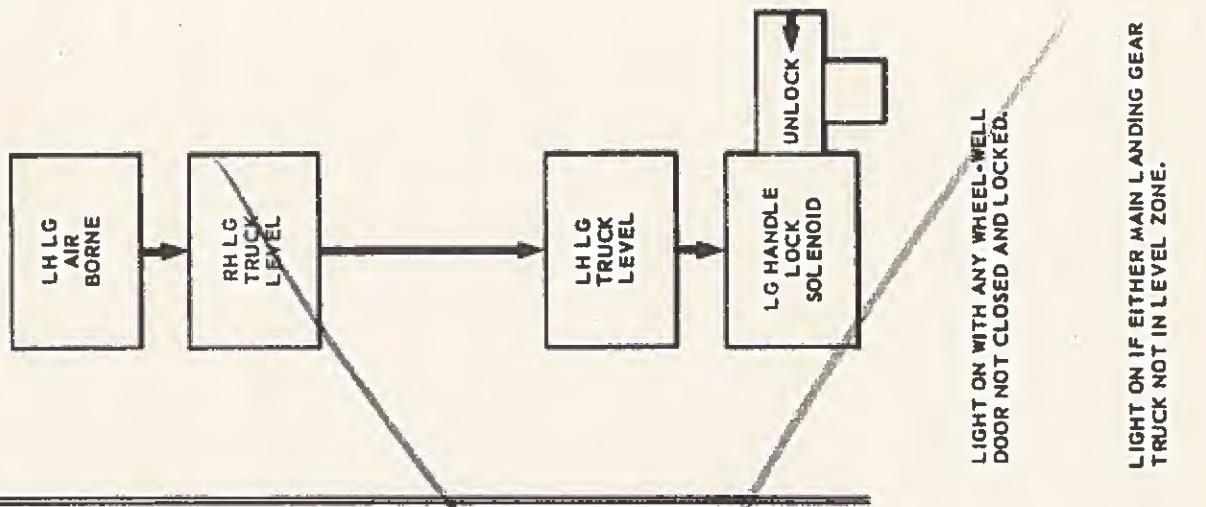
3.16 ELECTRICAL SYSTEM (Cont)

- 3.16.8.3.9 ACCESSORY AREA LIGHTING: Lighting shall be provided in the accessory areas (electronics, hydraulic, pneumatic, air conditioning and electrical) for general illumination of these areas. Lights shall operate when the service doors to these areas are opened.
- 3.16.8.3.10 EXTERNAL SERVICE POWER SYSTEM: It shall be possible to energize certain interior lighting from the external power source without the necessity of energizing the power distribution system in the aircraft. This lighting shall include cabin general lighting, pilot compartment general lighting, electrical rack area, baggage compartments and wheel well lights.
- 3.16.8.4 SERVICE LIGHTING:
- 3.16.8.4.1 CARGO COMPARTMENT LIGHTS: Lighting shall be provided in the cargo compartments. Each light assembly shall be independently removable without requiring the removal of large sections of cargo compartment liner. Fixtures shall be installed to preclude damage to baggage. Lights within the cargo compartments shall operate when the cargo doors are opened, and be so located that, with the baggage doors open, light will aid in baggage handling below the doors. Lights shall be guarded against damage from cargo or baggage.
- 3.16.8.4.2 WHEEL WELL LIGHT: A light shall be provided to illuminate each wheel well. Each light shall be controlled by an individual switch in the corresponding wheel well. Control for all lights shall be from one switch located on the pilots overhead panel.
- 3.16.8.4.3 AFT COMPARTMENT LIGHT: Lighting shall be provided in the aft unpressurized area of the fuselage. The light shall operate when the service door to this compartment is opened.
- 3.16.8.5 EMERGENCY LIGHTING (SELF-CONTAINED-TYPE): An emergency lighting system shall be installed consisting of seven independent light assemblies incorporating self-contained, trickle charge batteries. Lights shall be automatically energized when airplane power supply is disconnected. The light assemblies may be switched on for testing.
- 3.16.8.5.1 CONTROLS: A three-position "ON-ARMED-OFF" switch shall be installed in the pilot compartment and be labeled "EMERGENCY LIGHTS". When in the "OFF" position all emergency exit

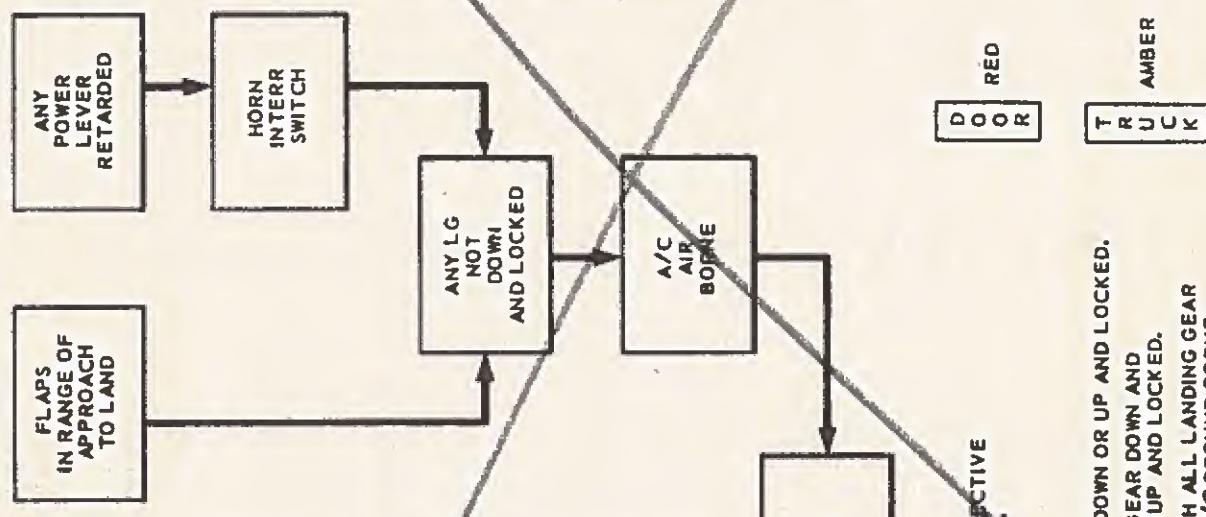
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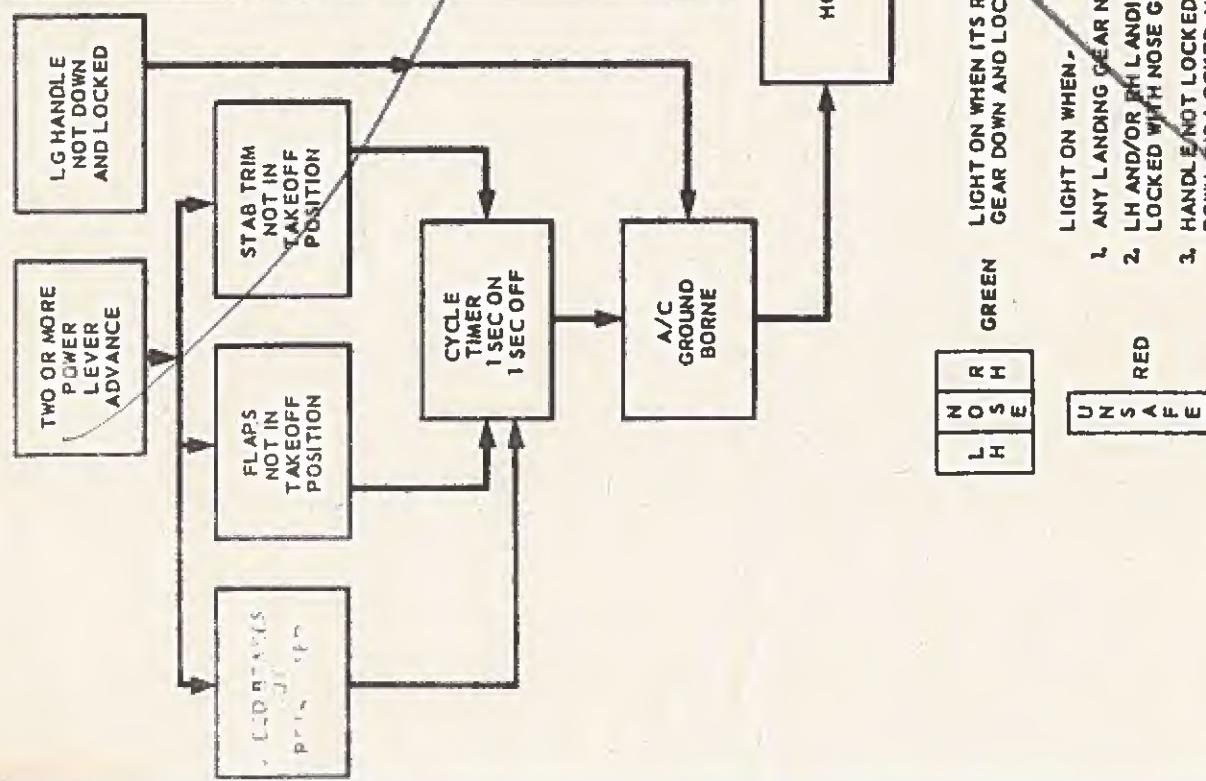
LANDING GEAR LEVER



AIRBORNE AND LANDING



TAKEOFF



WARN HORN, LANDING GEAR CONTROL & LANDING GEAR POSITION SYSTEMS

010A

3.17 RADIO AND ELECTRONICS (Cont)

- 3.17.1.3.3 INTERFERENCE: Radio interference shall be held to the minimum practicable levels and shall in general conform to Specification MIL-I-6051A. External series-type radio filters shall not be used in essential and emergency circuits which are operated intermittently. Filters shall not be installed indiscriminately but only as required to meet the above noise specification.
- 3.17.1.3.4 SPARE TERMINALS AND SPARE WIRES: Approximately ten percent spare terminals as original design shall be installed in the radio junction boxes in addition to those required for specific equipment as specified in 3.17.1 and for ARINC designated spares. All spare wires shall be terminated adjacent to active terminals for the unit served. ARINC designated spare pins on the control unit and equipment unit plugs shall be connected to wires terminated on junction terminals.
- 3.17.1.3.5 SENSITIVITY CONTROL WIRING: The sensitivity or volume control circuits shall not use any portion of the airplane structure as a ground return circuit. Separate ground return wires between the controls and the equipment connector plugs shall be used. Wire shielding shall not be used for ground return. Shields shall be grounded at a single point only. Cabling shall be designed and installed so that audio cross talk, interaction between circuits, and noise induction shall not exceed the requirements of 3.17.1.3.3. Sensitivity control wires shall be as short as possible.
- 3.17.1.3.6 WIRING DIAGRAMS: Wiring diagrams of electronic circuits including spare wires shall be seasonably submitted to the Buyer by the Seller.
- 3.17.1.3.7 ANTENNA TRANSMISSION LINES: If applicable, all flexible antenna coaxial transmission lines shall be routed through fixed conduit. The conduit installation shall permit removal and replacement of any antenna coaxial line without removal or installation of cable coaxial fittings in the aircraft. Deviations from this requirement for conduit will be permitted only when the antenna coaxial line involved is wholly in the radio rack area or installed in an accessible area. Where the coaxial cable length is such as to cause difficulty in cable removal, coaxial fittings shall be installed at each end to permit replacement of a short cable end segment most subject to wear and damage.

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station shall be provided at each of the following locations: Pilot compartment (centrally located), cabin attendants' stations, station at each engine pod, station at nose wheel well, each main wheel well, fuselage tail cone, in the hydraulic compartment, the drinking water tank area, and at the external electrical power receptacle. A handset shall be installed at each buffet area and in the pilot compartment. A single stroke continuous duty chime and call light shall be installed at the pilot compartment and each buffet area for use with these handsets and activated by momentary contact "call" switches labeled "STEWARDESS" and "PILOT COMPARTMENT" respectively. A momentary call switch and signal light shall be installed at each buffet area for inter-buffet signaling.

3.17.2.3.5

~~SMOKE AND OXYGEN MASK AND MICROPHONE:~~ Pilots' combination smoke and oxygen mask shall contain a microphone connected into the audio system. Control switches for the pilot and copilot shall be installed on the outboard horn of the control wheels. Switches for other crew members shall be located at their respective stations. All control switches are to make and break both the microphone audio circuit and microphone control circuit.

3.17.2.3.6

~~PUBLIC ADDRESS SYSTEM:~~ A public address system shall be installed. The loud speaker arrangement shall make flight announcements audible and clearly understandable at any location in the passenger seat areas for normal flight and ground conditions when used by either crew or cabin service attendants. The system shall include an airborne tape reproducer located in the radio rack. A handset shall be installed at each cabin attendant's station. A control panel at each cabin attendant's station shall contain a volume control and volume meter. The public address system shall be operative when the radio ac electrical bus is energized. A handset shall be installed in the pilot compartment. A volume control and volume meter shall be installed convenient to the pilot. A speaker unit shall be provided on each side of the cabin for every two rows of seats. The output of the public address amplifier shall be distributed to the speakers through a 70.7-volt (RETMA) system, or similar means, with tapped transformer or transformers to permit allocation of different power levels to different areas to compensate for variations in ambient noise level. All speaker units shall have maximum practical acoustical baffling and shall have cone diameters of six inches. The

- 3.17 RADIO AND ELECTRONICS (Cont)
- 3.17.4.3 DOPPLER NAVIGATION (PROVISIONS): Provisions for the installation of one tracker unit (1/2-ATR Long) in accordance with ARINC Characteristic No. 540 shall be made in the radio rack. Provisions for the installation of one transmitter/receiver (3/8-ATR Short) in accordance with ARINC Characteristic No. 540 shall be made in the fuselage as close to the antenna as possible.
- 3.17.4.3.1 CONTROL: Provisions shall be made for the installation of one doppler radar control panel at the pilot's overhead panel.
- 3.17.4.3.2 INDICATOR: Provisions for the installation of a doppler radar indicator shall be made on the pilot's instrument panel and a repeater indicator on the radio operator/navigator panel.
- 3.17.4.3.3 ANTENNA: Provisions for a doppler antenna assembly consisting of an antenna, wave guide, adapter and wiring shall be made on the left hand wing outboard of the main landing gear wheel well.
- 3.17.4.4 DOPPLER COMPUTER MARK I: Provisions shall be made in the radio rack for the installation of one (1/2-ATR Short) computer unit in accordance with ARINC Characteristic No. 543.
- 3.17.4.4.1 CONTROL: Provisions shall be made in the forward pilot's and copilot's pedestal for the installation of a doppler navigator computer panel.
- 3.17.4.4.2 INDICATOR: Provisions shall be made in the pilot's instrument panel for the installation of a doppler navigator's computer indicator.
- 3.17.5 STATIC DISCHARGERS: Static discharger devices, of the latest design as of the date of this specification, shall be installed, if testing discloses necessity thereof.
- 3.18 ARMAMENT: Not applicable.

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FURNISHINGS AND EQUIPMENT:

3.19.1

GENERAL: The interior shall include furnishings and equipment for 103 passengers and crew accommodations. (See Page 3b, INTERIOR ARRANGEMENT STANDARD - MIXED.) In addition, the interior shall be designed to permit conversion to full coach interior arrangement utilizing five-across seating.

3.19.1.1

ACCOMMODATIONS FOR PERSONNEL:

3.19.1.1.1

SEATS: All seats shall be equipped with vinyl foam, or equivalent cushions, and shall be designed, wherever practicable, in accordance with Guggenheim Foundation and NACA Crash Research and Cornell Crash Injury Research safety recommendations. Seat attaching fittings and seat carry-through structure shall be of suitable material so that shock loads, within design limits, shall not dislodge seats. Wherever fabrics are used for seat upholstery they shall be replaceable.

3.19.1.1.2

PILOT'S AND COPILOT'S SEATS: Seats shall be provided for the pilot and copilot, which shall have a minimum adjustment of five inches vertically and seven inches fore and aft. The pilot's and copilot's seats shall be capable of recline adjustment. The seats shall be interchangeable between airplanes. The pilot's and copilot's seats shall be interchangeable between stations by relocating adjustment controls from left to right side of seat or vice versa and transfer of log book holder. The seat backs, cushions and arm rests shall be upholstered and covered with a material as specified by the Interior Finish Specification. The pilot's and copilot's seats shall have provisions for headrests. Life preserver stowage shall be made on the back of all crew seats.

3.19.1.1.2.1

FLIGHT ENGINEER'S SEAT: A seat shall be provided for the flight engineer and shall be the swiveling-type and shall be track-mounted so the occupant can position himself at his station. The seat shall be removable and interchangeable between airplanes. The seat backs, cushions and arm rests shall be upholstered and covered with a material as specified by the Interior Specification.

3.19.1.1.3

RADIO OPERATOR/NAVIGATOR STATION: A radio operator/navigator station shall be installed aft of the pilot. The station equipment shall include the following:

3.19 FURNISHINGS AND EQUIPMENT (Cont)

a. Table

- b. Seat, similar to flight engineer's seat except with no seat track. Life jacket stowage provisions shall be provided in the seat back.
- c. Oxygen regulator and mask.
- d. Lighting (flood and work light)
- e. Required wiring and circuit breakers.

3.19.1.1.4 CABIN ATTENDANTS' SEATS: Three retractable upholstered seats and back-rests shall be installed for the cabin attendants as follows:

One single aft facing seat on left hand cabin aft bulkhead.

One Buyer-furnished single seat on the inboard face of the aft left hand buffet.

A double forward facing seat on the forward face of the left hand partition.

Life preserver stowage shall be installed on or adjacent to each cabin attendant seat.

3.19.1.1.5 SEAT TRACKS: Continuous, recessed seat tracks permitting fore and aft seat movement in one-inch increments shall be installed on both sides of the passenger compartment and shall extend the full length of the passenger compartment, except attach fittings shall be used for the front and last seat rows.

3.19.1.1.6 PASSENGER SEATS: The passenger seat arrangement shall be as shown herein. All passenger seats shall have reclinable backs and shall be equipped with plug-in center arm rests. Flush mounted life preservers shall be installed on the underside of all passenger seats. These life preservers shall be included in Fixed Useful Load. Space approximately 10 x 25 x 24 inches shall be provided under each double & triple-seat for passenger package stowage. Seat bottom cushions shall be equipped with straps and shall be usable as life preservers. Literature pockets shall be installed on aft face of class dividers and in the seat backs. A literature pocket shall be installed on the sidewall for the forward left hand facing seats. An integral folding

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FURNISHINGS AND EQUIPMENT (Cont)

food tray shall be provided for each seat. All seats (first class and coach) shall be provided with receptacles for plug-in food trays. Plug-in food trays shall be provided for the two most forward left hand double seats, the seat row just aft of the forward coat closets and the seat row just aft of the class dividers. Stowage shall be provided for the 13 plug-in food trays. A standard and a wide ratchet-type footrest shall be provided for each first class double seat, except the forwardmost left hand aft facing seat. A coach-version ratchet-type footrest shall be provided for each coach seat. Leg rests shall be provided on all first class seats except the two left hand, facing double seats. A stewardess step, including a removable one piece extruded section with back-up structure built into the inboard arm rest, shall be installed on each triple seat. All first class seats shall be provided with adjustable headrests, except the forwardmost left hand aft facing seat. All first class seats shall have extended arm rests and, except for the two forward left hand facing seats, shall be capable of approximately 45 degrees recline. The space occupied by the two forwardmost left hand double seats shall also be designated as an optional crew rest area.

3.19.1.1.6.1 SEAT BACK MOVEMENT: Each reclining seat shall be designed so that pressure applied on the aft side of the seat-back will override the recline control lock without additional manual operation, and fold the seat-back forward to its normal upright position. This pressure on the seat-back shall not exceed 25 pounds. The seat-back shall fold further forward to approximately 30 degrees forward of the normal upright position (as defined below) without removal of the arm rests, by applying a load of not less than 30 pounds pressure or more than 35 pounds pressure on the aft side of the seat-back. Seat-back positions shall be as follows:

Normal Upright: 15 degrees aft of vertical (first class and coach)

Recline: 38 degrees aft of vertical (coach)

45 degrees aft of vertical (first class, except two fwd L.H. seat assemblies which have 38 degrees recline)

3.19.1.1.7 SAFETY BELTS: Commercial-type safety belts shall be provided on all seats. Inertia reels and shoulder harness

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Normal Upright: 15 degrees aft of vertical (first class and coach)

Recline: 38 degrees aft of vertical (coach)

45 degrees aft of vertical (first class, except two fwd L.H. seat assemblies which have 38 degrees recline)

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FURNISHINGS AND EQUIPMENT (Cont)

shall be provided for the pilot, copilot, flight engineer and radio operator/navigator. Safety belts only shall be provided for the cabin attendants' seats. The aft stewardess safety belt and shoulder harness shall be Buyer furnished. A double-safety belt installation shall be provided on the double-cabin attendants' seat. No shoulder harnesses shall be provided for this double-seat. Energy absorption devices shall be installed at each safety belt attachment on all first class seats only.

3.19.1.2

CONVERTIBILITY: Movable coat compartments shall be used as class dividers in the passenger compartment to divide the cabin into various combinations of first class and coach seating arrangements. Attachments shall be provided at five locations to permit substitution of one right and one left hand coat compartment assembly for one full row of seats. Air distribution guarantees shall be met with the class dividers installed in the locations specified in 3.20.1.9

3.19.1.3

DESIGN DETAILS: Special attention in detail design shall be accorded crash protection of occupants. All protuberances (such as seat-backs) which could be contacted by an occupant normally restrained in his seat shall be constructed of energy absorbing material. Reading lights, call buttons, assist handles, etc., shall be so located as not to be passenger or crew hazards. Use of sharp corners in buffets, tables, lavatories, etc., shall be avoided. The passenger convenience pod and mounting in the hat rack shall be installed approximately flush with the hat rack. The design of all interior appointments, particularly in the lavatories, shall incorporate rounded corners and fillets where practicable in order to facilitate cleaning of all exposed surfaces. All stowed equipment shall be restrained sufficiently to prevent its coming loose during emergency or turbulent flight conditions. All permanently attached equipment shall be restrained to resist crash load requirements.

3.19.2

MISCELLANEOUS EQUIPMENT:

3.19.2.1

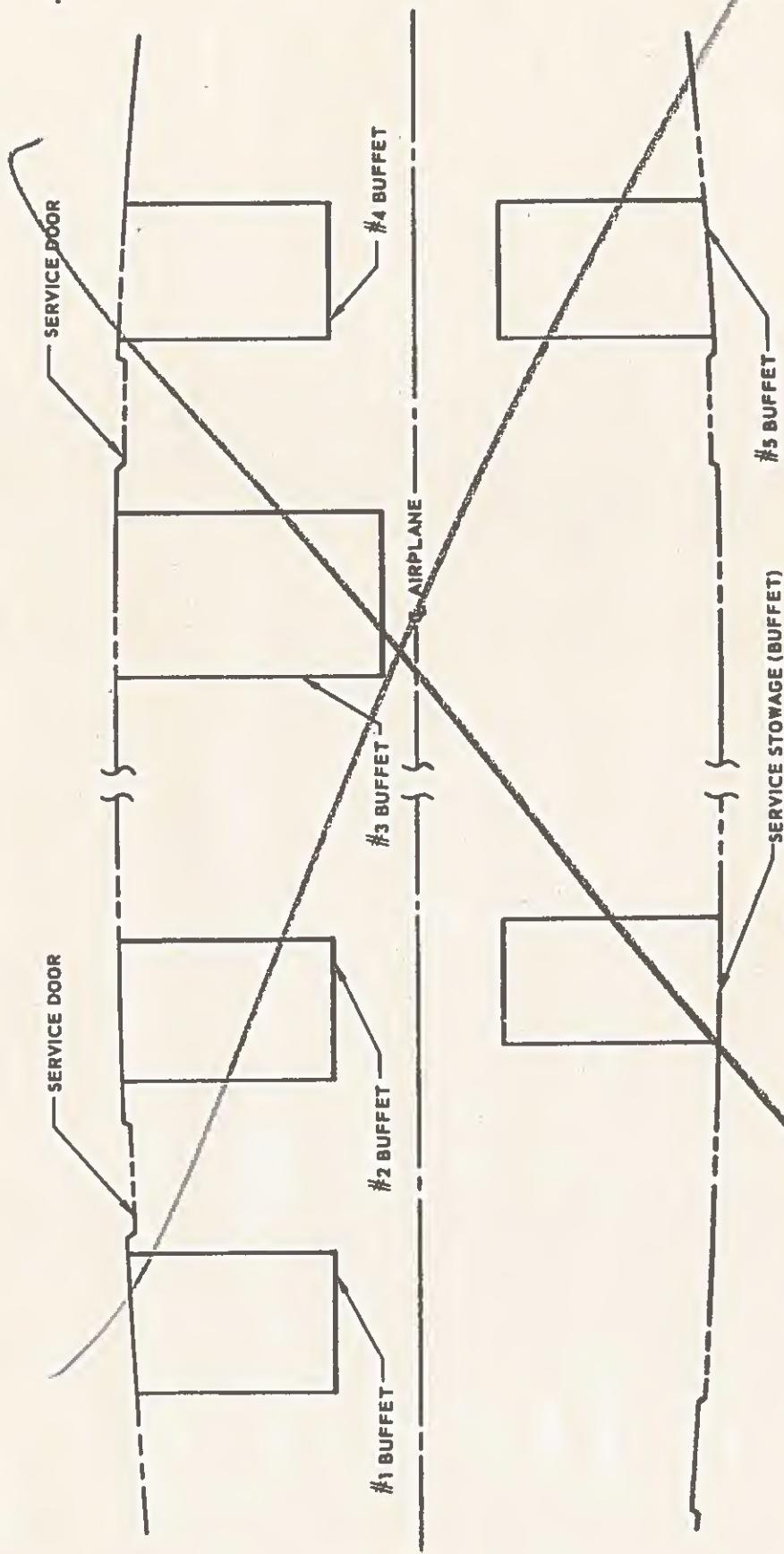
BUFFET INSTALLATION: Buffet units shall be removable for ease of maintenance and servicing.

3.19 FURNISHINGS AND EQUIPMENT (Cont)

- 3.19.2.1.1 BUFFET: Five Buyer-furnished buffet units shall be installed. Units No. 1 and No. 2 shall be located on either side of the forward service door. Units No. 3 and No. 4 shall be located on either side of the aft service door. Unit No. 5 shall be located aft of the rear main entrance way. A Buyer furnished stowage locker shall be installed forward of the forward left hand coat stowage divider for buffet service items. Removable decorative trim panels shall be installed for trimming the inboard and back sides of these buffets, in addition to closing trim for the outboard side and top of the buffets. The decorative trim panels and closing trim shall be furnished by the Buyer with the buffets. For the forward pair of buffet units the fore and aft space allotment shall be 101 inches overall not including bulkheads. The water connection shall be a quick-disconnect-type and shall be self sealing at both buffet and aircraft sides of line. Aircraft sidewall and/or ceiling trim shall not be fastened to the buffet. However, adequate sealing shall be accomplished between buffet outboard side and sidewall lining.
- 3.19.2.1.2 CONTROL PANELS: Two cabin attendants' control panels shall be installed, one over each service door area. Two separate control panels for service interphone, public address systems, and handset shall be provided, one on the aft face of the partition forward of the forward main entrance door and one aft on inboard end of No. 4 Buyer furnished buffet. These panels shall contain controls for the following.
Entrance, passenger and buffet lighting
Passenger and crew call system
Lavatory lighting
- 3.19.2.1.3 WATER SYSTEM: A pressurized potable water system shall be provided to supply the lavatory wash basins and buffets. The tank capacity shall be 75 gallons of water with an adequate air space to act as a pressure reservoir. This pressure system shall deliver water at a minimum flow of .75 gpm at a minimum pressure of 20 psi to all buffets with all three buffet water supplies and two lavatory water supplies in use simultaneously. The system shall be located and designed to prevent freezing on the ground (with ground power)

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PLAN VIEW BUFFETS
REAL

3.19

FURNISHINGS AND EQUIPMENT (Cont)

One plastic toilet cover and seat (commercial)
Stainless steel counter and wash bowl (built in soap tray)
Hot and cold faucets and lever operated drain stopper
One miscellaneous stowage space
One placard "ASK STEWARDESS FOR RAZOR"

3.19.2.3

COAT STOWAGE: One fixed passenger coat stowage compartment shall be installed on the left hand side forward of main entrance door. A continuous-rod-type coat rod shall be installed in this coat compartment.

3.19.2.3.1

COAT COMPARTMENT STOWAGE BIN: A stowage bin shall be provided above the fixed coat compartment. The fixed coat compartment stowage bin shall be provided with a door and a horizontal shelf to divide the bin into an upper and lower section. Provisions for stowage of two first aid kits shall be made in stowage bin.

3.19.2.4

LUGGAGE AND CARGO COMPARTMENTS: Two combination cargo and luggage compartments shall be provided in the underfloor area of the fuselage, one forward and one aft of the wing. The ceiling and side walls shall be lined with removable panels. Access panels shall be provided over all equipment located behind the cargo lining or below the floor. All joints and openings shall be sealed to meet the CAR requirements for Class "D" compartments.

3.19.2.4.1

CARGO DOOR PROTECTION: Hard panel protective enclosures shall be provided at each of the two cargo compartment loading doors to protect the doors in the open position. A web-gate shall be provided at each cargo door to prevent cargo from resting on the floor in the closed position.

3.19.2.5

WINDSHIELD WASHERS AND WIPERS: See 3.7.1.3.2.2.

3.19.2.6

PYROTECHNICS:

3.19.2.6.1

FLARE DISPENSERS: Two electrically-operated flare dispensers shall be installed to eject flares vertically downward from the aft lower fuselage area. Means for inspecting the latch after flare loading shall be provided. The release of flares shall be controlled from the pilot compartment by safeguarded electrical switches so wired as to prevent inadvertent flare release.

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3.19 FURNISHINGS AND EQUIPMENT (Cont)

- 3.19.2.7.10 CUP HOLDERS: Individual coffee cupholders shall be provided for each normal crew member.
- 3.19.2.7.11 LOG BOOK STOWAGE: Stowage shall be provided in the pilot compartment for the accommodation of a log book holder, 11 inches wide, 12 inches high and 2-1/2 inches thick.
- 3.19.2.7.12 MISCELLANEOUS STOWAGE: A miscellaneous stowage compartment shall be provided on the aft face of the forward right hand passenger bulkhead. The compartment shall be equipped with a hinged door on the inboard side and shall incorporate a shelf approximately 18 inches above the floor of the bin.
- 3.19.2.7.13 FIRST AID KIT: Two first aid kits shall be provided as a part of useful load emergency equipment.
- 3.19.2.7.14 ILLUMINATED SIGNS - BILINGUAL: The illuminated "No Smoking - Fasten Seat Belt" sign, the lavatory "Occupied - Vacant" (as defined in 3.16.8.3.6), the "Exit" and "Emergency Exit" signs shall be bilingual (Portuguese and English).
- 3.19.3 FURNISHINGS:
- 3.19.3.1 GENERAL ARRANGEMENT: The standard fuselage interior general arrangement is shown in the illustration herein. Interior trim fabrics, upholstery, floor coverings, finishes and color scheme shall be as described in Convair Interior Finish Specification. (Reference 3.2.4.) Weights for these materials are shown in Appendix I-D.
- 3.19.3.1.1 PASSENGER COMPARTMENT: The main passenger compartment aisle shall be a minimum of 24 inches wide between arm rests in the standard configuration. The minimum clear ceiling height in the main cabin shall be approximately 85 inches at the airplane centerline except at the dropped ceiling and entry areas.
- 3.19.3.1.2 MOVABLE COAT DIVIDERS: Movable coat dividers, consisting of one right hand assembly and one left hand assembly, shall be installed. One set shall be installed forward, and one set shall be installed to divide the first class and coach passengers; all as shown on Page 3b - INTERIOR ARRANGEMENT - STANDARD MIXED. The movable coat dividers shall be capable of being installed on one inch increments anywhere within the limitations specified in 3.20.1.9. The

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FURNISHINGS AND EQUIPMENT (Cont)

- movable coat dividers shall utilize the existing passenger seat attachments and shall be designed to clear the side-wall and hat rack contours with a one inch gap. Each movable coat divider shall be provided with a 28-inch long pull-out coat rod. Each right hand coat divider shall include an illuminated "NO SMOKING" and "FASTEN SEAT BELT" sign (Portuguese and English). Each coat compartment divider shall incorporate a storage box including an upward swinging door on the aisle side.
- 3.19.3.2 FLOOR COVERING: Floor covering throughout the aircraft shall be as specified by the Interior Finish Specification. Floor covering shall be installed to restrict creeping and curling. The floor covering in the passenger area shall be retained by methods which permit quick and easy replacement of covering and which do not require tools. Mechanical fasteners and metal hold-down strips and moldings shall be avoided. Consideration shall be given to the static electricity characteristics of the carpet installed.
- 3.19.3.3 TRIM: Interior trim lining throughout the aircraft shall be replaceable and of flame-resistant material as specified by the Interior Finish Specification. Interior trim shall be of modular construction and shall be removable for purposes of periodic structural inspection.
- 3.19.3.3.1 FROST INSULATION: It shall be a design objective to minimize condensation of moisture on any interior surfaces under any flight condition.
- 3.19.3.4 SOUNDPROOFING: Particular attention will be given to control of sound intensity and frequency distribution. In this regard, special attention shall be given to the speech interference frequencies between 600 and 4800 cycles per second.
- Noise Level Guarantee: Noise measurements shall be taken at passenger head height above the centerline of each aisle seat in the four rows of seats respectively located nearest Stations 480, 760, 1000 and 1310. The average SID* of these four stations shall not exceed 67 decibels, with a tolerance of two decibels. This guarantee applies when operating the airplane at an altitude of 25,000 feet, with the engines at maximum cruise thrust (96 percent rpm), with 160,000 pounds gross weight, in standard air, and with normal equipment, passengers and cargo aboard.

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FURNISHINGS AND EQUIPMENT (Cont)

*AVERAGE SIL - Average Speech Interference Level: Arithmetic average of the sound pressure levels measured in the three frequency bands of 600-1200, 1200-2400 and 2400-4800 cycles per second. Sound pressure levels are references to .0002 dynes per square cm.

3.19.3.4.1

COMPONENT NOISES: As a design objective, noise from airplane components shall not be audible in the passenger compartment under normal flight conditions.

3.19.3.5

CURTAINS AND SHADES: All passenger compartment windows shall be provided with glare control. Each passenger coat compartment opening shall be curtained. Curtains shall be provided for the fore and aft buffet units. Aisle curtains shall be installed at the forward and aft movable coat dividers. A curtain shall be installed to enclose the crew rest area. Curtain materials shall be as specified in the Finish Specification.

3.19.3.6

HAT RACKS: Overhead hat racks shall be installed, extending the full length of the main passenger compartment, including the area over the two forward left hand double seats.

3.19.3.6.1

PASSENGER CONVENiences: Overhead passenger convenience pods shall be installed and shall be adjustable fore and aft. The installation shall provide for additional pods to allow for seat spacing to a minimum of 34 inches.

3.19.4

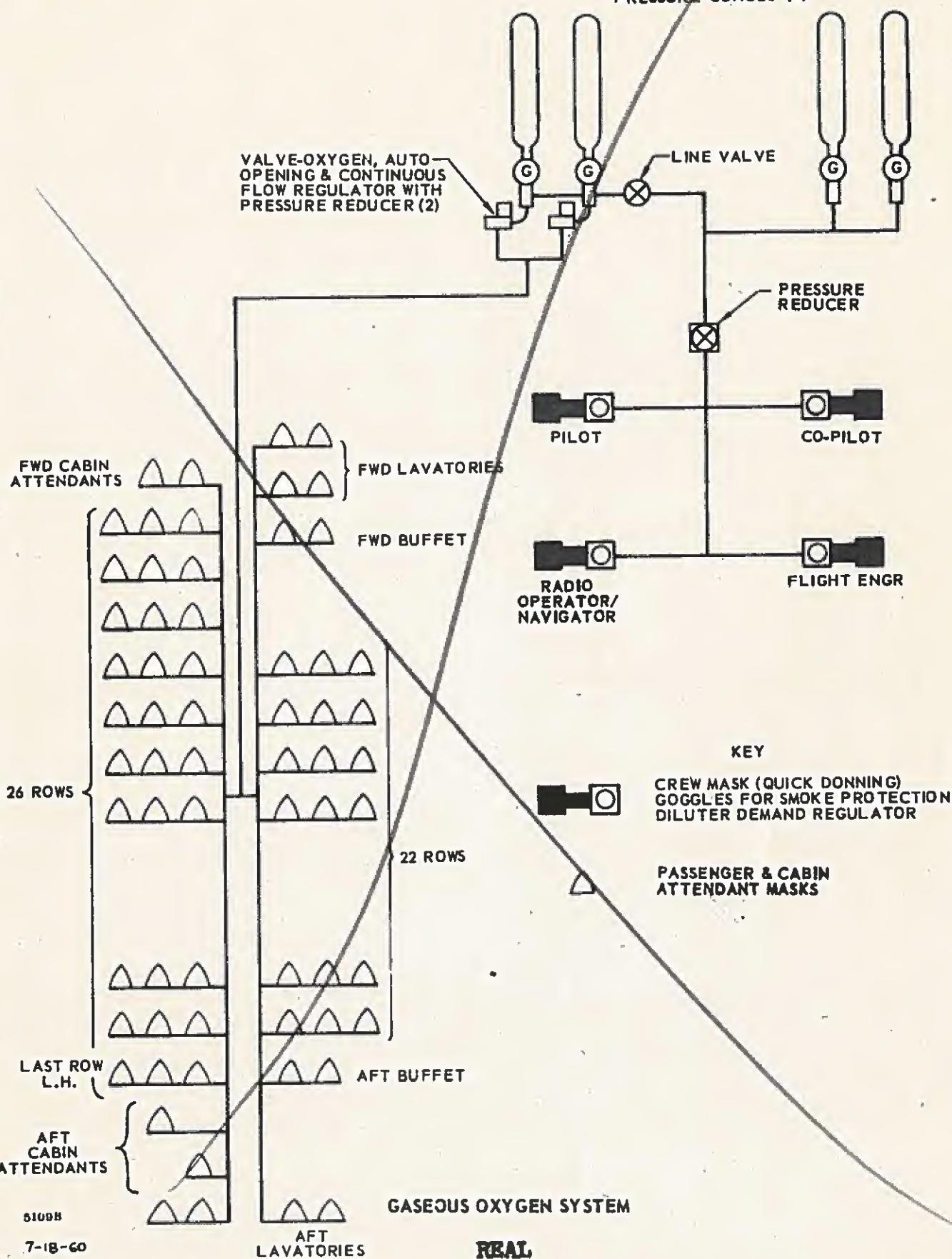
FIRE EXTINGUISHING EQUIPMENT:

3.19.4.1

POD FIRE EXTINGUISHING SYSTEM: Two "HRD" type, two-shot (Main and Reserve) fire extinguishing systems shall be installed to extinguish fires in pod and pylon areas, both in flight and on the ground, and shall conform to the requirements of CAR. The complete installation shall consist of two independent systems; one for the right hand propulsion systems, and one for the left hand propulsion systems. The containers shall be charged with the extinguishing agent and nitrogen. The heating and ventilating systems shall be designed so that entry of discharged fire extinguishing agent into the occupied areas will not be possible. The supply bottles shall be accessible and removable for recharging and inspection. A pressure gage shall be provided at each fire extinguishing agent container. Container

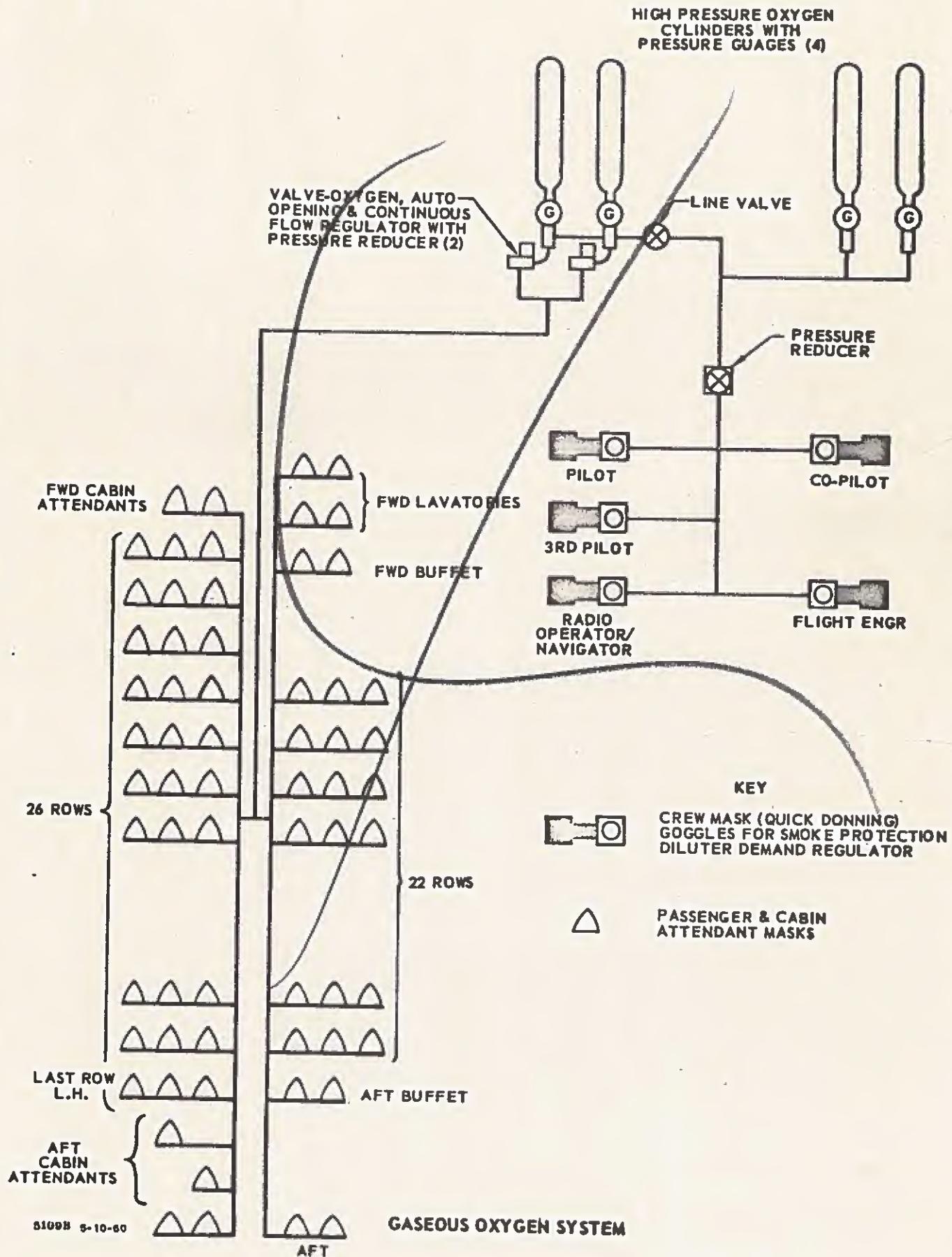
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HIGH PRESSURE OXYGEN
CYLINDERS WITH
PRESSURE GUAGES (4)



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3.20

AIR CONDITIONING, ANTI-ICING AND PRESSURIZATION (Cont)

Additional sensing elements shall be provided for the last two of these positions. A thermometer shall be provided at each end of the main cabin, reading in degrees F.

3.20.1.11

OTHER COMPARTMENTS: The heating system shall be capable of maintaining baggage compartment floor temperature above freezing during flight through atmosphere having ambient temperatures as specified for a cold atmosphere in ANA Bulletin 421 dated 24 September 1953 for the maximum endurance of the airplane. Air supplied to the cargo compartments shall be by infiltration only, within the ventilation limits of a FAA Class "D" compartment. No cargo compartment temperature control system shall be provided.

3.20.1.12

GROUND HIGH PRESSURE CONNECTION: A ground high pressure connection shall be located on the right hand side of fuselage near the wing front spar to permit ground pressure testing of the high pressure duct system, operation of the cabin air compressors and pneumatic starting of the engines from a suitable ground source. The Freon system shall be capable of being operated on the ground from a suitable external electric source through the aircraft normal electric ground connection.

3.20.1.12.1

GROUND AIR CABIN TEMPERATURES: The heating system shall be capable of maintaining, on the ground with engines at idle rpm or with ground electric power connected and with all doors and windows closed, an unoccupied compartment average temperature of 75°F when the ambient static temperature is as low as 0°F. The cooling system shall be capable of maintaining, on the ground with engines at idle rpm or with ground electric power connected and with all doors and windows closed, with full recirculation and with a 118-seat coach configuration, an occupied compartment average effective temperature as defined by ASHVE of 75°F with outside temperature of 40°F above NACA standard and 33 percent relative humidity.

3.20.1.12.2

ELECTRONIC COOLING: Positive ventilating air flow shall be provided to cool the electronic equipment within the electronic manufacturer's specified limits during all ground and flight conditions. An auxiliary blower may be provided for standby operation when the primary source of ventilating air is not available.



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- 3.20 AIR CONDITIONING, ANTI-ICING AND PRESSURIZATION (Cont)
- 3.20.2 ANTI-ICING:
- 3.20.2.1 ANTI-ICING OF NONTRANSPARENT AREAS: A heat anti-icing system shall be provided, for anti-icing the leading edges of the wings, by a bleed air supply from the main engine compressors. The wing leading edge devices shall be de-iced or anti-iced in both the extended and retracted positions. Leading edges of the empennage shall be de-iced by electrical means. Switches shall be provided for "ON-OFF" control of the system. Temperature indicators shall be provided to indicate satisfactory operation of the wing anti-icing system. Overheat protection shall be provided for the wing structure. The system, duct joints and clamps shall be designed to provide protection against leakage and to permit servicing and inspection. Insulation shall be provided around the system ducts and couplings as required. No insulation shall be installed on couplings at connection to valves. Anti-icing shall be provided for the engine inlet duct lips. All important inlet scoops shall have anti-icing or de-icing provisions as required. An "ON-OFF" switch shall be provided to isolate each aft fan anti-icing system from the engine bleed air during takeoff, climb and cruise conditions. The airplane anti-icing system shall be operative with any two propulsion engines inoperative.
- 3.20.2.2 IN-FLIGHT OPERATION: The aircraft with its anti-icing system operative shall be capable of being dispatched into or through continuous maximum and intermittent maximum icing conditions as defined by CAR 4b 640. Operation of other airplane systems shall not cause anti-icing system to become ineffective.
- 3.20.2.3 GROUND OPERATION: The system components shall be operable on the ground for maintenance and inspection. The system shall be completely operative and heat available to the leading edges at the instant the airplane is airborne.
- 3.20.2.4 ANTI-ICING AND ANTI-FOGGING OF TRANSPARENT AREAS: Electrically heated glass of the conductive-film-type shall be provided for electrical anti-icing and anti-fogging the pilot's and copilot's windshields (the three forward panels). Electrically heated glass of the conductive-film-type shall also be provided for defogging the pilot's and copilot's side windows. Temperature sensing elements shall be installed in the pilot's and copilot's windshield and side windows to provide temperature control. The windshield anti-icing system design shall be such that electrical or

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3.20 AIR CONDITIONING, ANTI-ICING AND PRESSURIZATION (Cont)

3.20.2 ANTI-ICING:

3.20.2.1 ANTI-ICING OF NONTRANSPARENT AREAS: A heat anti-icing system shall be provided, for anti-icing the leading edges of the wings, by a bleed air supply from the main engine compressors. The wing leading edge devices shall be de-iced or anti-iced in both the extended and retracted positions. Leading edges of the empennage shall be de-iced by electrical means. Switches shall be provided for "ON-OFF" control of the system. Temperature indicators shall be provided to indicate satisfactory operation of the wing anti-icing system. Overheat protection shall be provided for the wing structure. The system, duct joints and clamps shall be designed to provide protection against leakage and to permit servicing and inspection. Insulation shall be provided around the system ducts and couplings as required. No insulation shall be installed on couplings at connection to valves. Anti-icing shall be provided for the engine inlet duct lips. All important inlet scoops shall have anti-icing or de-icing provisions as required. The airplane anti-icing system shall be operative with any two propulsion engines inoperative.

3.20.2.2 IN-FLIGHT OPERATION: The aircraft with its anti-icing system operative shall be capable of being dispatched into or through continuous maximum and intermittent maximum icing conditions as defined by CAR 4b 640. Operation of other airplane systems shall not cause anti-icing system to become ineffective.

3.20.2.3 GROUND OPERATION: The system components shall be operable on the ground for maintenance and inspection. The system shall be completely operative and heat available to the leading edges at the instant the airplane is airborne.

3.20.2.4 ANTI-ICING AND ANTI-FOGGING OF TRANSPARENT AREAS: Electrically heated glass of the conductive-film-type shall be provided for electrical anti-icing and anti-fogging the pilot's and copilot's windshields (the three forward panels). Electrically heated glass of the conductive-film-type shall also be provided for defogging the pilot's and copilot's side windows. Temperature sensing elements shall be installed in the pilot's and copilot's windshield and side windows to provide temperature control. The windshield anti-icing system design shall be such that electrical or

3.23

INTERCHANGEABILITY - REPLACEABILITY:

3.23.1

DEFINITIONS:

- a. Interchangeable Parts: Interchangeable assemblies and parts are those which are capable of being installed, removed, or replaced from one airplane to another without fitting other than minor trim and bumping.
- b. Replaceable Parts: Parts manufactured in a manner employing jigs and fixtures or similar means to assure replaceability. Replaceable parts are distinguished from interchangeable parts in that some drilling and fitting is required during installation.

3.23.2

EQUIPMENT INTERCHANGEABILITY:

- a. Interchangeable Parts:

Fuel Tank Access Doors
Wing Tips
Emergency Exit Panel Assembly
Instrument Panels
Engine Nose Cowl
Vertical Stabilizer Tip (including HF antenna and plastic isolation band)
Horizontal Stabilizer, Leading Edge
Vertical Stabilizer, Leading Edge
Pilot's, Copilot's Seat Assembly (with exceptions noted in 3.19.1.1.2)
*Passenger Seat Assembly L.H.
Passenger Seat Assembly R.H. (except for Seat Assemblies to Emergency Exits)
Control Column Assembly
Rudder Pedal Assembly
Cast or forged control horns where attached to movable surfaces by bolts
Engine (quick change) except Reversers
Nose Radome
Pilots' Enclosure Glass
Cabin Windows
Wing Tip Caps
Ailerons
Elevators
 Rudders
 Tabs
Horizontal Stabilizer Tip Caps

*NOTE: Except the most forward left hand aft facing seat assembly (see 3.19.1.1.6).

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INTERCHANGEABILITY - REPLACEABILITY (Cont)

a. Interchangeable Parts (Cont)

Vertical Stabilizer Tip Caps
Complete Landing Gears
Wheels, Brakes, Tires, Tubes and Anti-Skid Devices
Lavatory Mirrors
Cabin Floor Covering
Crew and Passenger Seat and Back Cushions and
Arm Rest Covers
Flaps
Spoilers
Landing Gear Door Mechanism
Horizontal Stabilizer R.H.
Horizontal Stabilizer L.H.
*Horizontal Stabilizer Center Section
Wing Anti-shock Bodies, fairing sections aft of
fuel bulkhead (in like positions on airplane)
Pod Doors
Bullet Nose (Engine Hub Fairing)
Wing Leading Edge Slats

b. Replaceable Parts:

Nose Landing Gear Doors
Main Landing Gear Doors
Fuselage Entrance Doors
Cargo Doors
Sheet Metal Control Horns, Masts and Brackets
Wing Leading Edge
Fairings
All Doors or Covers not specifically listed as
interchangeable.
Floor Panels
Access Panels
Vertical Stabilizer, Complete Assembly
Sealing Blades, Stabilizer to Fuselage
Wing Anti-shock Bodies, Foward Fuel-carrying
Sections (in like positions on airplane)

3.23.3

CONVAIR PART NUMBERS: Wherever practicable all parts shall
be identified by part number stamped or marked on the part.
When a change is made that affects interchangeability or
replaceability, or results in a substantial improvement or
significant effect on usage as determined by Convair, the
part shall be re-identified.

*Horizontal stabilizer center section shall be interchange-
able; however, some body structure in local areas must be
removed in order to replace this assembly. For this reason,
demonstration of interchangeability is waived on this item.

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APPENDIX I-A

BUYER FURNISHED - CONVAIR INSTALLED

<u>Quan Reqd</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Total Part or Weight Spec.No. (lb)</u>
<u>FURNISHINGS</u>			
5	Buffets (including decorative trim panels, closing trim and provisions for insert and storage items, one stewardess seat, safety belt and shoulder harness)		1348.0
1	Stowage Locker, Buffet Service		100.0

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APPENDIX I-C

CONVAIR FURNISHED - CONVAIR INSTALLED

NOTE: This appendix lists major items of equipment supplied by Convair. The Seller reserves the right to select, specify and assign parts, manufacturer weights and part numbers where such items are not now shown herein.

PROPELLSION EQUIPMENT

Quan.	Description	Manufacturer	Part or Spec. Number
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POWER PLANT EQUIPMENT

4	Engine, complete (dry) Includes items of standard equipment as listed in G.E. Spec. E-753d dated 9-11-59	Gen. Electric	CJ-805-23 E-753d dated 9-11-59
4	Starter, Air Turbine	AiResearch	351810
4	Valve, Starter Shut-Off	AiResearch	105492
4	Reverser, Thrust	Gen. Electric	E-751 dated 5-21-59

FUEL SYSTEM EQUIPMENT

8	Pump, Booster, consisting of XTF-13900 Housing & XTB-141000 Pump	Thompson Prod.	139100 Assy.
12	Pump, Fuel Transfer	Carter	
6	Pump, Jettison	Thompson Prod.	
2	Pump, Dual-Purpose, Supply-Jettison		



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APPENDIX I-C

CONVAIR FURNISHED - CONVAIR INSTALLED

INSTRUMENTS AND RELATED EQUIPMENT (Cont)

Quan Reqd	Description	Manufacturer	Part or Spec. Number
*4	Indicator, Pressure Ratio	U. S. Gauge	SRL-015G
4	Transmitter, Pressure Ratio System	Mineapolis- Honeywell	LG14C7
4	Indicator, Tachometer (Fan)	Gen. Elec.	8DJ81LAT-1
<u>INSTRUMENTS - FUEL SYSTEM</u>			
*4	Indicator, Fuel Flow	Gen. Elec.	8DJ97LAA-1
1	Indicator, Fuel Temperature	Lewis	162025
2	Indicator, Fuel Quantity Counter Point Type Tanks 1 and 4	Simmonds	
2	Indicator, Fuel Quantity Counter Point Type Tanks 2 and 3	Simmonds	383053-10829
2	Indicator, Fuel Quantity Refueling, Tanks 1 and 4	Simmonds	
2	Indicator, Fuel Quantity Refueling, Tanks 2 and 3	Simmonds	383093-04832
AR	Probes, Fuel Quantity	Simmonds	
4	Transmitter, Fuel Flow	Simmonds	
8	Switch, Main Fuel Pump Pressure	Gen. Elec.	8TJ59GAM-2
1	Indicator, Fuel Quantity Counter Point Type Center Section Tank	Aero Inst	1B2599-9
2	Indicator, Fuel Quantity Refueling, Center Section Tank	Simmonds	383053-10830
*1	Indicator, Fuel Quantity Totalizer	Simmonds	383093-04833
<u>ENGINE INSTRUMENTS - OIL SYSTEM</u>			
4	Indicator, Oil Quantity	Simmonds	383056-06835
4	Indicator, Oil Pressure	U. S. Gauge	SR-04A
4	Indicator, Oil Temperature	Lewis	162C23A
4	Transmitter, Oil Quantity	Simmonds	

*Instrument integrally lighted and clamp-mounted.

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APPENDIX I-C

CONVAIR FURNISHED - CONVAIR INSTALLED

INSTRUMENTS AND RELATED EQUIPMENT (Cont)

Quan Reqd	Description	Manufacturer	Part or Spec. No.
<u>ENGINE INSTRUMENTS - GENERAL</u>			
4	Indicator, Thrust		
4	Transmitter, Thrust Measuring		
*4	Indicator, Tachometer (Fan)	Gen. Elec.	8DJ81LAT-1
<u>INSTRUMENTS - FUEL SYSTEM</u>			
*4	Indicator, Fuel Flow	Gen. Elec.	8DJ97LAA-1
1	Indicator, Fuel Temperature	Lewis	162C25
2	Indicator, Fuel Quantity Counter Point Type Tanks 1 and 4	Simmonds	
2	Indicator, Fuel Quantity Counter Point Type Tanks 2 and 3	Simmonds	383053-10829
2	Indicator, Fuel Quantity Refueling, Tanks 1 and 4	Simmonds	
2	Indicator, Fuel Quantity Refueling, Tanks 2 and 3	Simmonds	383093-04832
AR	Probes, Fuel Quantity	Simmonds	
4	Transmitter, Fuel Flow	Gen. Elec.	8TJ59GAM-2
8	Switch, Main Fuel Pump Pressure	Aero Inst.	1B2599-9
1	Indicator, Fuel Quantity Counter Point Type Center Section Tank	Simmonds	383053-10830
2	Indicator, Fuel Quantity Refueling, Center Section Tank	Simmonds	383093-04833
*1	Indicator, Fuel Quantity Totalizer	Simmonds	
<u>ENGINE INSTRUMENTS - OIL SYSTEM</u>			
4	Indicator, Oil Quantity	Simmonds	383056-06835
4	Indicator, Oil Pressure	U.S. Gauge	SR-04A
4	Indicator, Oil Temperature	Lewis	162C23A
4	Transmitter, Oil Quantity	Simmonds	

*Instrument integrally lighted and clamp-mounted

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CONVAIR FURNISHED - CONVAIR INSTALLED

ELECTRONICS EQUIPMENT (Cont.)

<u>Quan</u>	<u>Reqd</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Part or Spec.</u>	<u>Number</u>
<u>P.A. SYSTEM</u>					
1		Airborne Tape Reproducer	Gables		G-825
23		Speaker	Jensen		P6V
1		Passenger Address Amplifier	Bendix		AMA-10B
<u>INTERPHONE SYSTEM (SERVICE)</u>					
3		Handsets	Remler		A-255
2		Amplifier	Collins		356C-1
<u>INTERPHONE SYSTEM (FLIGHT)</u>					
2		Microphone (Boom)	Telephonics		RS-85
2		Speaker	Quam		4A07Z45
2		Speaker-Amplifier	Collins		356D-1
4		Microphone	Telephonics		RS-38E
4		Headphone	Telex		3775
1		Frame, Amplifier	Collins		346B-1
<u>WEATHER RADAR</u>					
1		Transmitter-Receiver	Bendix		RDR-1B-2
1		Indicator	Bendix		PPI-1D
1		Antenna Assembly (30-inch dish)	Bendix		ANT-1D
1		Synchronizer	Bendix		SYN-1B
<u>CONTROL PANELS</u>					
2		VHF Comm/VHF NAV (ILS, DMET)	Gables		
1		Weather Radar	Gables		
2		Radio Compass (ADF)	Gables		G-567
5		Audio Selector Panels	Gables		
1		Selcal (Dual Channel)	Gables		G-566
4		Panel, Microphone Selector	Gables		
3		Panel, Public Address	Gables		G-802
1		Panel, HF Comm (dual)	Gables		
1		Frequency Chart Panel (HF Comm)	Gables		G-587
1		Radio Power Panel	Gables		G-635
1		Pilot's P/A Panel	Gables		G-746
1		Fwd. Stewardess P/A Panel	Gables		G-816
1		Aft Steward P/A Panel	Gables		G-815
1		Standby HF Receiver Control	Gables		

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ELECTRONICS EQUIPMENT (Cont)

Quan	Reqd	Description	Manufacturer	Part or Spec. No.
<u>P. A. SYSTEM</u>				
1		Airborne Tape Reproducer	Gables	G-825
23		Speaker	Jensen	P6V
1		Pass. Address Amplifier	Bendix	AMA-10A
<u>INTERPHONE SYSTEM (SERVICE)</u>				
3		Handsets	Remler	A-255
2		Amplifier	Collins	356C-1
<u>INTERPHONE SYSTEM (FLIGHT)</u>				
2		Microphone (Boom)	Telephonics	RS-85
2		Speaker	Quam	4A07Z45
2		Speaker-Amplifier	Collins	356D-1
4		Microphone	Telephonics	RS-38E
4		Headphone	Telex	3775
1		Frame, Amplifier	Collins	346B-1
<u>WEATHER RADAR</u>				
1		Transmitter-Receiver	Bendix	RDR-1B-2
1		Indicator	Bendix	PPI-1D
1		Antenna Assy. (30-inch dish)	Bendix	ANT-1D
1		Synchronizer	Bendix	SYN-1B
<u>CONTROL PANELS</u>				
2		VHF Comm/VHF NAV (ILS, DMET)	Gables	
1		Weather Radar	Gables	
2		Radio Compass (ADF)	Gables	G-567
5		Audio Selector Panels	Gables	G-566
1		Selcal (Dual Channel)	Gables	
4		Panel, Microphone Selector	Gables	
3		Panel, Public Address	Gables	G-802
1		Panel, HF Comm (dual)	Gables	
1		Frequency Chart Panel (HF Comm)	Gables	G-587
1		Radio Power Panel	Gables	G-635
1		Pilot's P/A Panel	Gables	G-746
1		Fwd. Stewardess P/A Panel	Gables	G-816
1		Aft. Steward P/A Panel	Gables	G-815
1		Standby HF Receiver Control	Gables	

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<u>Quan Reqd</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Part or Spec. Number</u>
<u>LANDING GEAR EQUIPMENT</u>			
8	Wheel, Main	Bendix	152051
8	Brake, Main Wheel	Bendix	152052
8	Tires, Main Wheel (41 x 15-18) Tread depth .38, 200 mi/hr)	Goodyear	Type VIII 22PR
2	Wheel, Nose	Bendix	152061
2	Tire, Nose Wheel (29 x 7.7) (Tread depth .31, 200 mi/hr)	Goodyear	Type VII 16PR
2	Brake, Nose Wheel	Bendix	152062
2	Main Shock Strut Installation	Cleveland	
1	Nose Shock Strut Installation	Cleveland	
1	Anti-Skid Detector NLG	Hydro Aire	
8	Anti-Skid Detector MLG	Hydro Aire	
1	Nose Wheel Steering	Cleveland	



CONVAIR - SAN DIEGO CONVAIR DIVISION



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CONVAIR FURNISHED - CONVAIR INSTALLED

Quan Reqd	Description	Manufacturer	Part or Spec. Number
<u>LANDING GEAR EQUIPMENT</u>			
8	Wheel, Main	Bendix	152051
8	Brake, Main Wheel	Bendix	152052
8	Tires, Main Wheel (41 x 15-18) (Tread depth .38, 200 mi/hr)	Goodyear	Type VIII 22PR
2	Wheel, Nose	Bendix	152061
2	Tire, Nose Wheel (29 x 7.7) (Tread depth .32, 200 mi/hr)	Goodyear	Type VII 16PR
2	Brake, Nose Wheel	Bendix	152062
2	Main Shock Strut Installation	Cleveland	
1	Nose Shock Strut Installation	Cleveland	
1	Anti-Skid Detector NLG	Hydro Aire	
8	Anti-Skid Detector MLG	Hydro Aire	
1	Nose Wheel Steering	Cleveland	

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Quan Reqd	Description	Manufacturer	Part or Spec. Number
<u>LANDING GEAR EQUIPMENT</u>			
8	Wheel, Main	Bendix	152051
8	Brake, Main Wheel	Bendix	152052
8	*Tires, Main Wheel (41 x 15-18) (Tread depth .38, 200 mi/hr)		Type VIII 22PR
2	Wheel, Nose	Bendix	152061
2	*Tire, Nose Wheel (29 x 7.7) (Tread depth .32, 200 mi/hr)		Type VII 16 PR
2	Brake, Nose Wheel	Bendix	152062
2	Main Shock Strut Installation	Cleveland	
1	Nose Shock Strut Installation	Cleveland	
1	Anti-Skid Detector NLG	Hydro Aire	
8	Anti-Skid Detector MLG	Hydro Aire	
1	Nose Wheel Steering	Cleveland	

*Manufacturer's weight empty guarantee includes tire vendor's weight selected by Convair.

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CONVAIR FURNISHED - CONVAIR INSTALLED

<u>Quan Reqd.</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Part or Spec. No.</u>	<u>Total Weight (lb)</u>
<u>FURNISHINGS</u>				
1	Seat, Pilot (Including Fabric, Belt and Harness)		Convair Dwg. 30-98504-1	
1	Seat, Copilot (Including Fabric, Belt, and Harness)		Convair Dwg. 30-98504-2	
1	Seat, Flight Engineer's (Including Fabric, Belt and Harness)	Weber		
1	Seat, Radio Operator/Navigator (Including Fabric, Belt and Harness)			
4	Toilet, Non-flushing-Type Disposal Tank, Enclosures, Wash Stands and Hardware			
4	*Escape, Chute (Noninflatable)			65.0
3	Rack, Magazine			
1	*Axe, Emergency	Air Associates	6701	3.0
4	*Rope, Escape			17.0
1	Double-Seat Aft Facing Special, L.H. Forward (Including Safety Belt)			
15	Double-Seat First Class, 52-Inch Width (Including Safety Belt with Energy Asorption Devices Leg Rests for 14 Double Seats and Footrests for 14 Double Seats)			
14	Triple-Seat, Coach, 64-Inch Width (Including Safety Belts, Stewardess Step and Footrests)			
15	Double-Seat, Coach, 44-Inch Width (Including Safety Belt and Footrests)			
5	*Life Rafts, 26-Man	Air Cruisers	3311	755.0
111	*Life Vests (Yellow)	Air Cruisers	AD-4	244.2
9	*Life Vests (Red)	Air Cruisers	AD-4	19.8
8	*Life Vests	Air Cruisers	CH-3	8.0
1	*Emergency Radio Transmitter	Bendix Pacific	AN/CRT-3	40.0
2	Divider, Movable Coat (L.H.) (Including Stowage Box)	Convair		

*Fixed Useful Load Item

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CONVAIR FURNISHED - CONVAIR INSTALLED

<u>Quan Reqd.</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Part or Spec. No.</u>	<u>Total Weight</u>
2	Divider, Movable Coat (R.H.) (Including Stowage Box)	Convair		
3	Reel, Inertia			
1	Single Cabin Attendant Seat, Folding-Type (Including Safety Belt)			
1	Double-Cabin Attendants' Seat, Folding-Type (In- cluding Safety Belts)			
2	*Kit, First Aid			5.0
30	Tray, Food, Integral Folding (First Class)			
72	Tray, Food, Integral Folding (Coach)			
13	Tray, Food Plug-in-Type			

*Fixed Useful Load Item

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CONVAIR FURNISHED - CONVAIR INSTALLED

Quan Reqd	Description	Manufacturer	Part or Spec. No.	Total Weight (lb)
<u>OXYGEN EQUIPMENT</u>				
4	*Cylinder, High Pressure Oxygen (107 cu ft, with gages)	Zep Aero	ZC-268-111	140.0
5	*Bottle, Portable Oxygen (120-liter)	Scott	5500-A1A-BF20B	25.0
10	Mask, Disposable (Portable Bottle)	Scott	5527	
1	*Bottle, Portable Oxygen (310-liter, Cockpit)	Scott	5600-1C1A-F20B	14.0
1	Mask (Portable Bottle)	Scott	10100A1A	
4	Regulator (Crew, Diluter- Demand-Type)	Scott	10400-13	
1	Valve Line, Oxygen	Robbins Aviation	OV-601-1P	
160	Mask, Passenger and Cabin Attendants' Oxygen	ARO Equipt.	C7040-1	
1	Pressure Reducer, Oxygen	Alar	5758	
2	Valve, Oxygen, Auto- opening (Continuous flow regulator with pressure reducer)	Com. Air. Prod.	2620A1	
4	Mask, Crew Supplemental	Sierra	232-209	
4	Goggle, Crew Smoke	Sierra	522-01	
1	*Asbestos Gloves	Davids Gloves	2214 FL	1.0
<u>FIRE EXTINGUISHING EQUIPMENT</u>				
1	*Bottle, Portable CO ₂ (5-lb) Type STB-1	Walter Kidde	870906	15.5
3	*Bottle, Portable Water	Walter Kidde	890275	19.5
4	Bottle, Fire Extinguisher (5-1/2 lb)	Walter Kidde	891490	

*Fixed Useful Load Item

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CONVAIR FURNISHED - CONVAIR INSTALLED

<u>Quan.</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Part or Spec.</u>
<u>Reqd.</u>			<u>Number</u>
<u>PYROTECHNICS</u>			
2	Flare Dispensers	Convair	(P/N to be supplied)
2	Flares, Emergency	Wiley	SA-8